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TIME

EDITION

Pets

UNDERSTANDING OUR BEST FRIENDS

Plus!

THE BEST TRAINING TIPS

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Ketchup and Strawberries Expl
Peril and Promise of AI
BY ARYN BAKER
Senior Correspondent
An open letter written and signed by some of the biggest names in computer science has raised the frightening specter of global annihilation at the hands (digits?) of artificial intelligence. And while the 22-word statement is short on specifics, the signatories—among them ChatGPT developer Sam Altman —are knowledgeable enough to know what they are talking about. But AI,

TIME

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Welcome!

Pets

UNDERSTANDING OUR BEST FRIENDS

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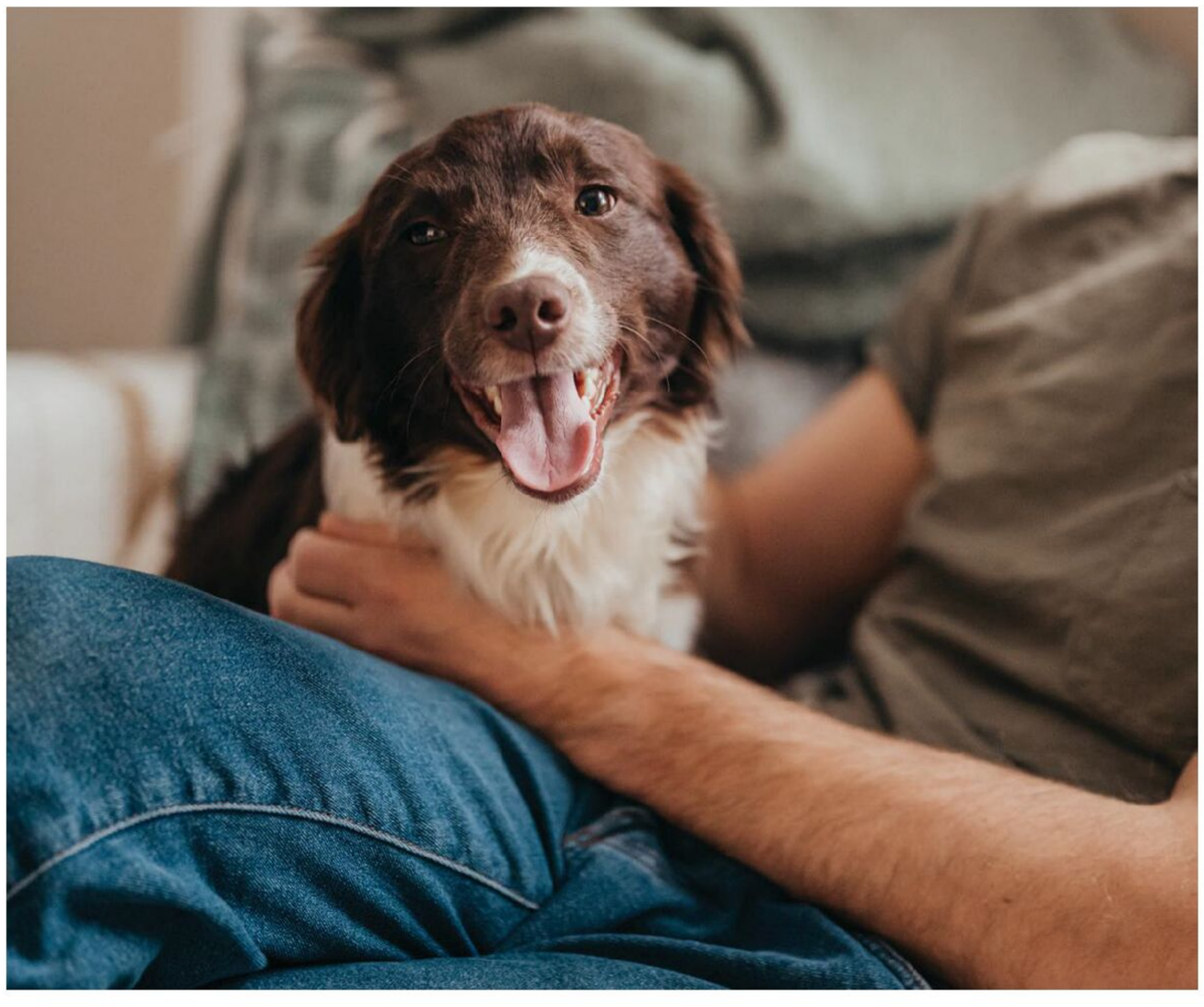
Chapter 1

WE ARE GOOD FOR EACH OTHER

SCIENCE SAYS YOUR PET IS GOOD FOR YOU

Studies show that exposure to animals—even crickets—can boost mental health.

By Mandy Oaklander



SCIENTISTS ARE DIGGING UP EVIDENCE that animals can help improve mental health, even for people with challenging disorders. Though the studies are small, the findings are impressive enough that clinical settings are opening their doors to animal-assisted interventions—pet therapy, in other words—used alongside conventional medicine. "It used to be one of the great no-no's to think of an animal in a hospital," says Alan Beck, director of the Center for the Human-Animal Bond at Purdue University, citing the fear of causing infection. "Now, I don't know of any major children's hospital that doesn't have at least some kind of animal program."

The rise of animal therapy is backed by strong scientific results showing that social support—a proven antidote to anxiety and loneliness—can come on four legs, not just two. Animals of many types can help calm stress, fear, and anxiety in young children, the elderly, and everyone in between.

Researchers still are trying to determine why it works and how much animal interaction patients need for optimal results. But studies show that paws have a place in medicine and in mental well-being. "The data is strong," Beck says. "If you look at what animals do for people and how we interact with them, it's not surprising at all." Here's a look some of the science in the field.

Rabbits & Turtles

In one study, a stressed-out group of adults were asked to pet a rabbit, a turtle, or their toy forms. The toys had no effect. But stroking a living creature, whether hard-shelled or furry, relieved anxiety. It worked for people regardless of whether they initially said they liked animals.

Crickets

Animals don't have to be cuddly to help. In a 2016 study published in the journal *Gerontology*, elderly people who were given five crickets in a cage became less depressed after eight weeks than a control group. The act of caring for a living creature seems to make the difference.

Horses

Horses are among the most-studied therapy animals. They have been involved in medical treatment in Europe since the 1860s. Activities like grooming a horse and leading one around a pen have been shown to reduce PTSD symptoms in children and adolescents.

Fish

Animals can focus a human's attention. When people at an Alzheimer's facility dined in front of aquariums that were filled with brightly colored fish, they ate more, got better nutrition, and were less prone to pacing. They were also more attentive and less lethargic.

Dogs

Some research suggests that when children who struggle with reading read aloud to a trained dog and handler, they show fewer anxiety symptoms. "Their attitudes change and their skills improve," says Dr. Lisa Freeman, director of the Tufts Institute for Human-Animal Interaction.

Guinea Pigs

Animals make socializing easier for kids who find it stressful, says Maggie O'Haire of the University of Arizona. In her study, when children with autism had a guinea pig in the classroom, they were more social with their peers, smiled and laughed more, and showed fewer signs of stress.

GROWING OLDER IS BETTER WITH A PET

The benefits of pet ownership are many, especially for the aging.

By Jamie Ducharme

PEOPLE WHO ARE LOOKING TO STAY WELL AS THEY age may want to adopt a pet, according to 2019 data from the University of Michigan National Poll on Healthy Aging.

For the survey, researchers polled about 2,000 U.S. adults from ages 50 to 80. Fifty-five percent said they owned at least one pet. Dogs were the most common pet, followed by cats and small animals, such as birds and hamsters. But no matter the type of animal, the vast majority of owners said their pets boosted their mental and physical health.

Nearly 90% of older pet owners said their animals helped them enjoy life and feel loved; roughly 80% said their pets reduced stress; and almost three-quarters said their furry friends provided a sense of purpose, according to the poll. In addition, 64% of pet owners—and 78% of dog owners—said their pets helped them stay physically active. Sixty percent also said their pets helped them cope with physical and emotional health issues.

People did report a few drawbacks to pet ownership, including difficulty traveling or leaving the house (54%) and financial strains (18%). Six percent of pet owners said they'd fallen or injured themselves as a result of having a pet—consistent with a recent study finding rising rates of fractures among elderly dog owners. Fifteen percent of pet owners, including 26% of those who said they were in fair or poor health, said their pet's health took precedence over their own.

Still, plenty of research has shown that just about anyone can benefit from a pet, since animals can lower stress, reduce symptoms of depression and anxiety, and encourage physical activity. The 2019 poll suggests that pet ownership may be especially impactful for older adults, given how common loneliness and social isolation are within this age group.

Human social support comes with a host of health benefits—less stress, lower rates of chronic disease, and more—and research shows that interacting with pets can bring many of the same benefits. (Animals may even serve as a catalyst for human friendships, since they often get caretakers out in the community, research shows.) If owning a pet isn't an option for some animal lovers, the report's authors recommend volunteering at an animal shelter, arranging pet therapy visits, or pet-sitting.

THE HISTORY OF PET ADOPTION

Housing homeless domestic animals in America goes back to the 1860s.

By Olivia B. Waxman

MORE THAN 12 MILLION AMERICAN HOUSEHOLDS HAVE gotten a pet in the time since COVID-19 was declared a pandemic in March 2020, according to the American Pet Products Association. The growth in pandemic-era pet adoption continues the trend of Americans turning to their pets for companionship in tough times. As TIME put it in a 1974 cover story, "During wars, insurrections, and depressions, particularly, pet ownership seems to proliferate. Even in today's inflation battered economy, when the care and feeding of pets would seem an exorbitant load on the family budget, there are more and more pet owners in the U.S.—deriving, perhaps, psychological sustenance from what English writer Rudyard Kipling called the dog's 'love unflinching that cannot lie.'"

Though shelters and rescues have been rising in popularity in recent years, their history in America is more than 150 years old.

While most Americans may associate animal shelters with adopting a pet cat or dog, the first such places tended to involve horses, with activists focused on the welfare of animals who were a key mode of transportation.

On April 14, 1869, Caroline Earle White and a group of like-minded people established what's considered the country's first animal shelter in Bensalem, Pennsylvania, outside of Philadelphia. In addition to horses, its mission expanded "to provide as soon as possible, a Refuge for lost and homeless dogs, where they could be kept until homes could be found for them, or they be otherwise disposed of."

"The whole notion of a shelter, or even a municipal pound, as a place where you could go and find a pet really took hold in the latter part of the 19th century and then has grown steadily ever since," says historian Bernie Unti, a senior principal strategist at the Humane Society of the United States.

In the Progressive Era, just as social reformers called for the humane treatment of factory workers during a time of rapid industrialization and urbanization, so too were activists calling for the humane treatment of animals.

That foundation set the country up for the post-World War II period, when pets became part of the quintessential suburban American family.

TIME's December 23, 1974, cover story on "The American Pet" declared that "the U.S. today is undergoing what can only be described as an animalthusian explosion" in which "pet ownership has become almost as sacred a democratic right as if it had been written into the Constitution." At the time, about 60% of American households had a pet, and it was becoming more common to pamper them. In 2021, the American Pet

6 Ways to Help Your Local Shelter

One of the best ways you can help your local animal shelter is by adopting a pet (or two). If that's not possible, there are other ways to support their life-saving mission.

1. Give Money

Funding is tight and your donation may be tax-deductible.

2. Show Gratitude

Send them a card, give a great online review, or bake them some cookies. Working with homeless pets is a stressful job—give shelter employees a reason to smile.

3. Use Your Skills

Contact your shelter and ask them what you can give or do to help. If you are an organizer, set up a drive for toys, food, or used towels; if you are a crafter, sew cage curtains or pet clothes; if you are computer-savvy, offer to help with social media.

4. Foster

So many animals need temporary homes. Open your doors.

5. Protect Your Own Pets

Make sure your shelter's resources aren't wasted on your own pet. Get your pet chipped and make sure they wear a collar with an ID. Ensure your backyard fence is secure and that the gate is closed at all times.

6. Offer Your Time

Shelters are always looking for volunteers to help clean cages, walk the dogs, facilitate adoptions, do administrative tasks, tidy up the grounds—the list goes on and on.

Products Association said the number is two-thirds of American households (67%); in March 2021, pet products spending surpassed the $100 billion mark for the first time.

"Pet-keeping has become more intensive, just like child rearing has," says Katherine C. Grier, author of *Pets in America: A History*.

In postwar America, the number of pet breeders grew, as did the overall population of cats and dogs—not all of which had homes with pampering families. The country now had to figure out what to do with the unfortunate animals that had nowhere to go.

By the 1970s, spay and neuter technology became more widely used, and animal-welfare groups like the Humane Society of the United States promoted the motto of "legislate, educate, sterilize" to reduce the number of unwanted animals. Seeing mixed-breed dogs like Benji on the big screen also helped normalize pet adoptions.

"Pushing adoption and trying to make the shelter as the first place to look for a pet was a big part of this overall strategy," says Unti. Adoption reduced the number of animals loose in the streets. In recent years, it's become more common to adopt a shelter pet.

Among pet dogs, the percentage adopted from shelters increased from 15% in 2006 to over 35% in 2016. The internet and social media, especially PSAs that the Ad Council started in 2009, are thought to have helped drive the rise in awareness of adoptions.

In 2021, Andrew Rowan, Chief Program Officer at WellBeing International, told TIME there were 5,000 animal shelters and animal rescue groups in the U.S.

The Bidens in 2021 joined a long tradition of high-profile figures aiming to increase adoptions even more. Animal welfare experts believe the adoption of First Dog Major will help raise awareness of animal shelters and rescue groups as places to adopt pets. Many celebrities have founded animal shelters: dancer Irene Castle founded Orphans of the Storm in 1928 and went onto become the President of the Westchester County, New York, Humane Society; Doris Day was known as "The Dog Catcher of Beverly Hills;" and *The Price Is Right* host Bob Barker urged viewers to make sure their pets were spayed and neutered.

Promoting pet adoption is a mission that, even after all these years, remains necessary.

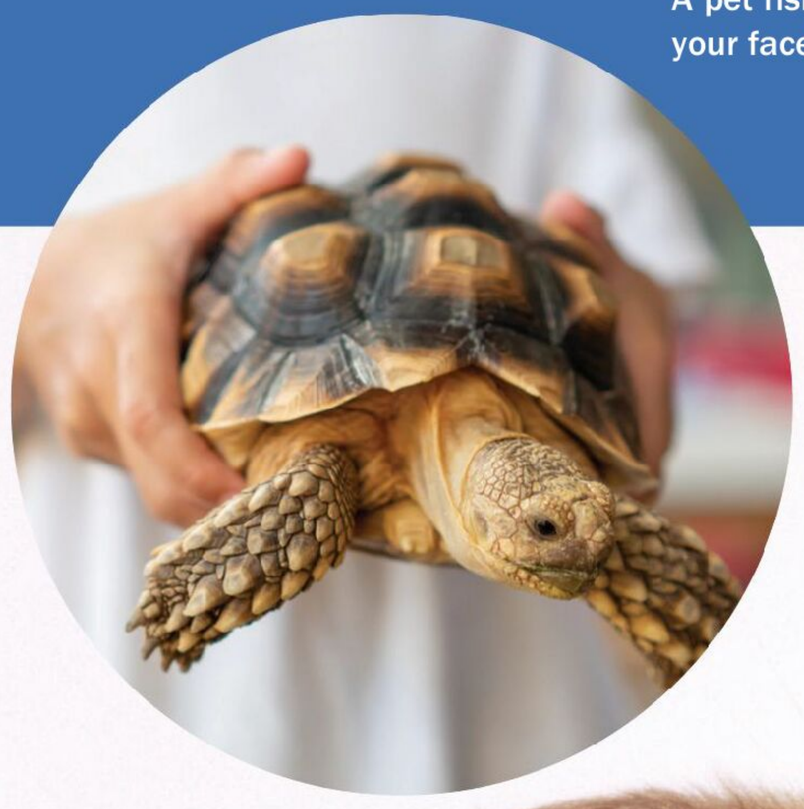
DID YOU KNOW?

› The origin of the word “pet” is thought to have come from the Middle English *pety*, which means small or minor.

› In 2022, 66% of American households had a pet.

› Some pets can carry infections or diseases that can make humans sick, even if the pet is healthy. These are called zoonoses.

› Reptiles are generally solitary animals, but some lizards and tortoises enjoy being handled from time to time. Although if they try to get away or act out, it’s best to put them back in their cage.



› The oldest parrot on record died in 2016 and was at least 82 years and 88 days old.

› Guinea pigs are highly social animals, so consider adopting more than one.

› Parakeets are monogamous. Once they find a mate, it is usually for life.

› Domestic cats have the ability to swim, but that doesn’t mean they want to.

› In most species, male and female snakes look identical.

› Fish have excellent memories. A pet fish has the ability to recognize your face.

› Cats prefer their food to be room temperature.

› Pet rabbits get lonely, and it can manifest in depression or destructive behavior. It’s best to adopt them in pairs.

THE PANDEMIC PET DILEMMA

A growing number of workers say they want their employers to make accommodations for their pets.

By Melissa Chan

THE SUBJECT LINE OF THE EMAIL FROM HIS EMPLOYER WAS enough to whip Gus Azusenis into a frenzy. "UPDATE," he read, a lump forming in his throat as he noted the urgency in all the capital letters. Then came the word he had been dreading for months: "RETURN."

Even without reading the message, Azusenis knew what it would say—that after more than a year, employees at his Chicago bank would be going back to the office. Anxiety consumed the financial analyst as he tried to imagine how he could properly care for Finley, his pandemic puppy, if he had to leave her alone to work long hours, five days a week. "I went into sheer planning-for-disaster mode," Azusenis said.

Across the room, blissfully unaware, Finley swished her tail back and forth, and Azusenis' heart broke a little bit more. The year-old Newfoundland had essentially spent her entire life at home with him, and she had no clue their little bubble was about to burst. "I felt crushed," Azusenis said.

He left the email unopened in a last-ditch effort to delay reality for one more day.

Thousands of pet owners were experiencing similar moments of emotional turmoil as companies across the U.S. prepared to reopen their offices post-pandemic. Poll after poll showed that they were worried about how returning to the office would impact their furry companions, particularly after the COVID-19 crisis created a surge in pet adoptions and situations in which many people rarely left their pets' side. In the summer of 2020, a survey of 3,000 pet owners found that 20% worried their pets would have separation anxiety. In the spring of 2021, as vaccinations augured a return to normal life, another survey found this fear shared by 69%.

What's more, of 400 dog owners surveyed by the pet-product company Honest Paws, 67% said they would consider looking for a different job if their company no longer offered remote work; 78% said they would stay if they could bring their pets to work. That sentiment is widely shared among young people, according to a separate Banfield Pet Hospital survey of 1,500 pet owners, which found that nearly half of Gen Zers, ages 18 to 24, and a third of millennials, 25 to 40, said they would rather quit their jobs than be forced to leave their pets at home alone full time.

In a survey, 67% said they would consider looking for a different job if their company no longer offered remote work; 78% said they would stay if they could bring their pets to work.

Azusenis—who adopted Finley in March 2020—counted himself as one of them. The first-time dog owner used to prioritize his job above all else. But he's no longer willing to be chained to a desk for 12 hours, getting up only to use the bathroom or to bring back an apple, knowing Finley is waiting at home and depending on him for her every need. "Getting a dog has really made me question how I'm working, from now and beyond," Azusenis said.

Clare Grindinger came to the same realization after a particularly busy day in March 2021 at the Dallas women's shelter where she was working. Grindinger didn't take her usual lunch break that day, so she wasn't able to check in on Rumi, the 14-month-old mixed-breed pup she adopted in August 2020. When she returned home around midnight, Grindinger opened her front door to find Rumi sick and surrounded by vomit. "That's a tough thing to come home to," she said. "I didn't know how sick he was." Three months later, she left her job for a human-resources position with a major airline that let her work from home permanently.

The "Planets Have Aligned" for People and Pets

Banfield president Brian Garish says the survey results reflect his own anxieties about leaving his two young cats at home alone. His bond with Ashin and Kenji grew stronger as he worked from home and saw a new side to the 2-year-old felines. Garish learned, for instance, that Kenji could open doors, something the crafty cat did one day as Garish was delivering a presentation on Microsoft Teams. While Garish was mid-sentence, Kenji set off a security alert by opening the front door and walking out of the house. "I guess I always wondered what they did when I was at work, and now I know," said Garish, who grabbed Kenji before he could go too far and then installed childproof locks on his doors.

As the economy recovered, employers nationwide were struggling to retain and recruit good workers, according to human-resources and labor experts as well as a handful of company executives interviewed by TIME. That gave millions of employees more bargaining power to "call the shots," said Rue Dooley, an adviser with the Society for Human Resource Management (SHRM), a national trade group. "All the planets have aligned in such a way that employers now are fighting for the best talent," Dooley says.

Among the top worker demands were pet-friendly policies, whether lenient work-from-home rules or permission to bring pets into the office.

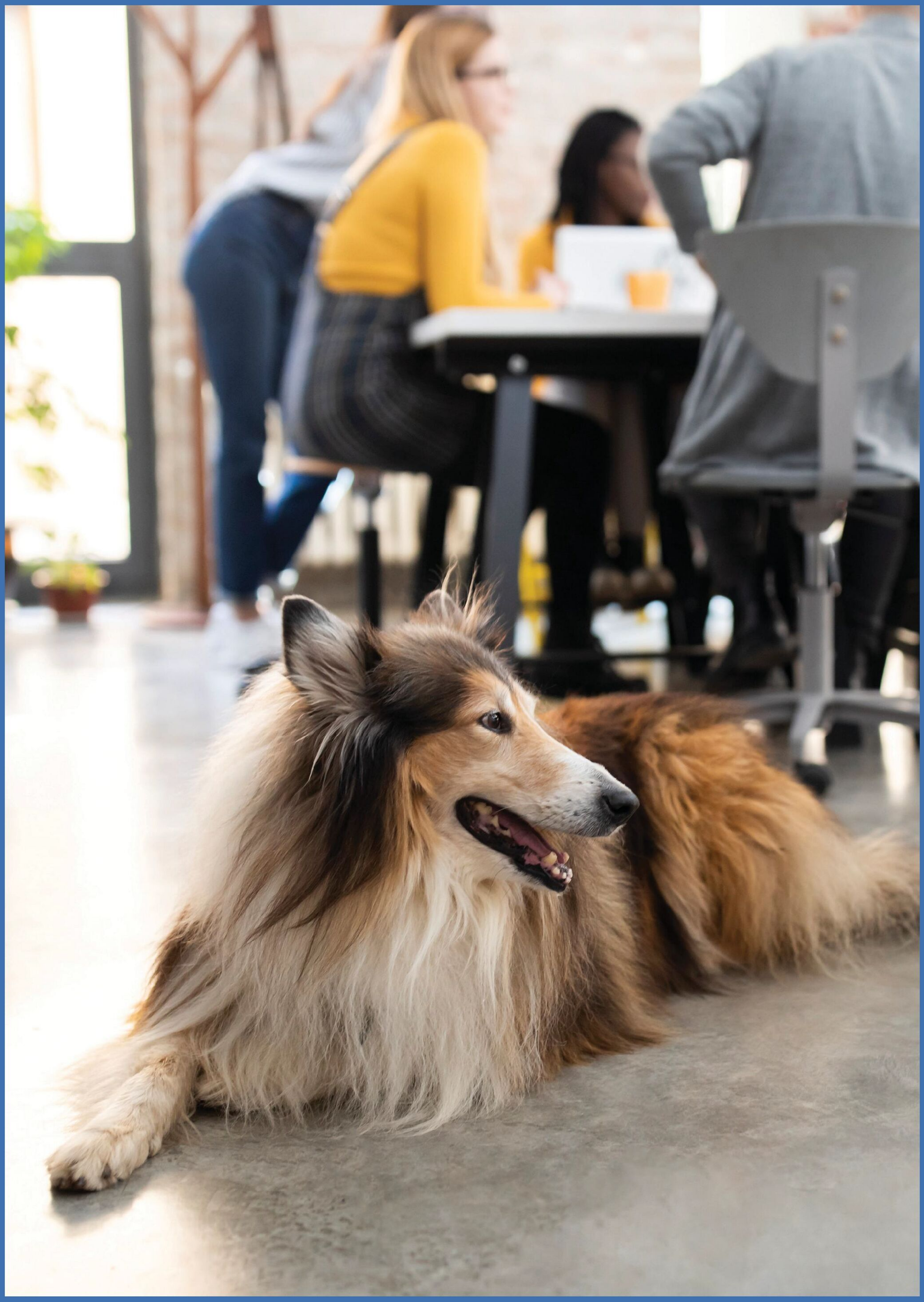
Some 12.6 million U.S. households got a new pet after the World Health Organization declared the COVID-19 outbreak a pandemic in March 2020, according to the American Pet Products Association. A tally by the nonprofit Shelter Animals Count found that at least 269,000 pets were adopted from rescue groups alone in 2020, some 36,000 more than the year before.

Companies searched for solutions that make both workers and pets happy. In Banfield's survey of 500 C-suite executives, half said they planned to start allowing pets in the workplace, joining major companies like Google, Amazon, and Ben & Jerry's, which have long touted their pet-friendly corporate spaces. In 2021, at least 59% of the executives surveyed said they were implementing new pet-friendly policies because of employee requests.

In December 2020, PuppySpot, a company that connects vetted dog breeders with prospective buyers, broke its lease at its main West Hollywood, Florida, headquarters about two years early to move to a Jersey City, New Jersey, building that allows pets. It was a costly decision, but one that could not wait as half of prospective new hires were asking whether the office was pet-friendly, said Jonathan Cherins, the company's CEO. Being able to finally say yes was a "huge win" for PuppySpot's credibility as an animal-loving organization as well as to recruitment efforts, Cherins said. "The ability to bring a dog to work is a real tangible piece of compensation," he said.

At Animalso, a pet-care blog site, morale and productivity improved as soon as a handful of dogs and cats started appearing in the office for the first time in June 2020, according to Rachel Cassidy, a veterinary consultant at the website. At the company's tiny West Covina, California, headquarters, lint rollers are available at every cubicle, and dogs can often be found chasing the robot vacuum that works overtime to suck up mounds of fur. There's even talk of creating tiny uniforms to match their owners' company hoodies. "Pets are so much an extension of us that it just makes sense for them to follow us to work instead of being bored at home," Cassidy said. "It sometimes makes us ask the question: Why didn't we think of this sooner?"

If it took two pro-pet companies a shakeup from a global pandemic to ask that question, it's no wonder most U.S. companies still have not rolled out the red carpet for the four-legged. Only about 11% of U.S. workplaces allowed pets in 2019, according to SHRM statistics. There are countless reasons why. For one, thorny insurance, liability, and workers' compensation issues come into play if a dog bites another dog or, worse, a human colleague. In other instances, one person's office dog can end up being another person's nightmare if they're allergic, fearful of dogs, or easily annoyed by barking. "The risks are too variable and too manifold," Dooley said. "Just because it's good for the employees doesn't mean it's best for the organization."



The number of pet-friendly workplaces has been slowly increasing for years. The growth, though small, has been promising for pet lovers—the 2019 figure is more than double the percentage in 2013.

Still, the number of pet-friendly workplaces has been slowly increasing for years. The growth, though small, has been promising for pet lovers—the 2019 figure is more than double the percentage in 2013. If there was ever a moment for widespread change, it was post-pandemic, said Dooley, who predicted a massive spike in pet-friendly offices in 2021. Pre-pandemic, few companies were paying attention to the value of pets, even though industry data shows pet owners collectively pour billions of dollars a year into caring for their critters. But pets came to the forefront, and it seemed that changing office infrastructures and a more empathetic society were paving the way for their inclusion in the workplace, Dooley said.

For one, many companies have implemented hybrid telecommuting work schedules or staggered in-person hours, meaning fewer people in the office and thus a more accommodating environment to introduce four-legged office mates. To keep germs at bay during the pandemic, many workplaces put up plexiglass barriers to isolate individual cubicles, which can double as pet-friendly pens.

That's similar to how Ben & Jerry's has been able to successfully integrate dogs in its large Vermont headquarters, where there are free dog treats at the reception desk and complimentary doggy ice cream. Each dog owner's cubicle is enclosed with a baby gate, and each workspace features a mini plush sofa for a pooch. Pre-pandemic, the ice cream giant would host up to 40 dogs at a time. "Dogs have been a source of emotional support throughout quarantine times," said Lindsay Bumps, Ben & Jerry's global marketing specialist. She added that she would not accept a job unless she was allowed to bring Spock, her 9-year-old French bulldog, to work.

Mental Health Concerns

That mental-health boost was the catalyst the pets-at-work movement might need to gain momentum. The moment came after people emerged from the darkness of the global pandemic that killed more than 1 million people in the U.S., led to increased isolation, and brought a slew of mental-health issues, including depression. Before Azusenis adopted Finley, he was living by himself and feeling increasingly lonely. Finley gave him something to focus on, he said, and he poured all of himself into making sure his dog's finite time on earth was filled with happiness. "I felt like…I was wandering through a field in the dead of night, in pitch black," he said. "She kept me focused on the light."

For Cherins, the PuppySpot CEO, it was urgent after so much trauma that he break his headquarter's lease to ensure workers had a warm and friendly environment to return to. Dooley, the human resources expert, agreed, saying pets have the power to soften even the hardest hearts, especially after prolonged suffering. "We're increasingly afraid of each other, angry with each other, annoyed with each other, for no reason whatsoever," he said. "We need more sweetness."

People like Kristen Aikey are depending on it. Aikey is the primary caretaker of Penny, her family's 15-year-old dachshund, who became blind due to glaucoma. Aikey has been administering three different eye drops four times a day, along with eye ointment and thyroid pills twice daily. Her responsibilities begin as early as 4 a.m.—when Penny wakes up to relieve herself and takes her first dose of medication—and continue every few hours until bedtime.

Aikey had been working remotely for a Manhattan-based public relations company, but she and her parents, who have returned to the office, worry how they'll care for Penny if Aikey can no longer be the designated work-from-home steward. Their biggest fear is that Penny will fall down any of the three sets of stairs in the house when nobody is home. But they're also worried how their senior pet will react to being left alone in general.

"That would be a culture shock for her, right after…having all the attention," said Aikey, who has vivid memories of the day her family bought Penny from a pet store. There was a discount on the 5-month-old wiener dog, who was wearing a pink bow and whose head was covered in little bumps from constantly whacking it against the water bottle in her cage. Aikey was "obsessed" with Penny from the start, and they've only grown closer. "It's been the 'Kristen and Penny Show,'" Aikey says. "How can you rip that away?"

Perhaps no one understands this better than Azusenis. In Chicago, when Azusenis was ready to face reality on June 2, 2021—some 24 hours after the work email landed in his inbox—he finally read the message, and it confirmed his fears. His employer was strongly encouraging all workers to return to the office, where pets are prohibited, starting June 14. His heart racing, Azusenis called his mother back home in Cleveland for parenting advice. From 300 miles away, she first tried to reassure him that everything would be OK, but reminded him that he'd known this would happen eventually.

On the morning of June 14, Azusenis could not get himself to put on a suit and tie and leave home. Instead, he signed on from home and hoped for the best. He doubted his work-from-home situation would be sustainable in the long run, but he opted to take the risk than be separated from Finley.

"Neither of us really knows what that's like," he said. "Isn't that right, Finley?"

In his office-bedroom, the bearlike puppy was nestled near him fast asleep, still blissfully unaware.

THE VETERINARIAN'S STRUGGLE

When taking care of pets takes a toll.

By Melissa Chan

DR. WILL MCCAULEY HAD JUST FINISHED HIS SHIFT AT a small Dallas animal clinic when he went home, fed his pet pot-bellied pig and then held a loaded handgun to his head.

The then 33-year-old veterinarian was wracked with student debt and worn down by the daily demands at work, which included euthanizing dogs and cats and being vilified by pet owners for not meeting their expectations. "I was tired in this miserable state of mind," he says. "It just drained me so much." For reasons he attributes to either fear or hope, McCauley didn't kill himself that summer day in 2016, and he quit his job later that week and stopped practicing.

"I knew I had to make a change," McCauley says. "I was dead on the inside."

The job challenges that more than 70,000 veterinarians in the U.S. face have led to disproportionately high suicide rates, according to the U.S. Centers for Disease Control and Prevention (CDC). Nearly 400 veterinarians died by suicide between 1979 and 2015, according to a CDC study published in January 2019 that analyzed more than 11,000 veterinarian death records in that timeframe. The study also found that female veterinarians are up to 3.5 times more likely to kill themselves than members of the general population. "It really can be classified as an epidemic in my profession," says McCauley, who went on to work for a trade association in Washington, D.C.

Euthanizing Can Be Heartbreaking

While researchers have long known that doctors are more likely to die by suicide than the general population—partially due to issues like depression, anxiety, and burnout—veterinarians face a set of unique stressors. Their patients can't speak or tell them what's wrong, much like babies can't communicate with their doctors. But unlike pediatricians, veterinarians frequently find themselves having to euthanize a patient with a treatable injury or illness because its caretaker can't afford the remedy, which might include costly surgeries. "You can say you're going to be stoic and put it out of your mind and say it's part of being a veterinarian," says McCauley, an animal lover who has a dog and a cat in addition to his pig, "but the reality is over time, that weighs on you."

Some vets are also tasked with putting down large groups of otherwise healthy animals due to overcrowding at shelters, although a *New York Times* analysis found pet euthanasia rates have drastically fallen in big cities in recent years, partially due to the decrease in the number of stray animals entering shelters as a result of successful spay and neutering campaigns.

Dr. Nicole McArthur, a veterinarian in Rocklin, California, left the profession twice because of the agony she felt after killing an animal. "There was a period of time when I was essentially Dr. Death," she says, adding that she'd sometimes have to put down three pets a day. "At the time, I was like, somebody is punishing me for something I've done in another life." The dreams she had to help animals as an aspiring

veterinarian quickly clashed with the harsh reality of having to take their lives even when they could have been surgically treated. She quit the field most recently in 2013 and returned in 2015. "We go through veterinary school with the idea that we're going to save lives," McArthur says. "To have to turn around and push a plunger is difficult."

Cyberbullying Is on the Rise

Another soul-crushing aspect of the job that most other health professionals don't have to deal with, veterinarians say, is constantly being asked to perform services or give out medications for free and then being cyberbullied or harassed if they don't. In 2022, Americans spent more than $136 billion on their pets, and more than $35 billion was for vet care, according to the American Pet Products Association, a trade group. While some pet insurance plans may ease sudden expenses, only a small portion of pet owners opt to buy it. Pets live in over 87 million homes in the U.S., but only 4.8 million pets were insured in 2022, industry figures show. McCauley says he'd be asked to waive vet fees at least once a day. "When you're not able to offer those free services and medications, you turn into the bad guy. They go online and they make you into the devil because you didn't treat their cat for free," he says. "It's a horrible position that veterinarians are put in." A 2014 survey by the American Veterinary Medical Association (AVMA) found one in five veterinarians were either cyberbullied by pet owners, who would write nasty reviews online or threaten their business, or knew a colleague who had been. "We have this tremendous fear that the mob is going to come after us online," McArthur says.

Debt Can Be Overwhelming

There are also financial struggles, particularly for young people entering the field. Veterinary students in the U.S. graduated in 2020 with an average of $147,000 in debt, according to the AVMA. Yet data from the Bureau of Labor Statistics shows the median annual wage for veterinarians in 2022 was $129,110, and starting salaries are significantly much lower. When Dr. Molly McAllister of Portland, Oregon, first entered the field in 2004, she took a veterinarian job for $22,000 a year with $90,000 in debt from just veterinary school. "I was really well-educated on how to take care of animals. I was not well-educated on how to take care of myself," she says.

Help Is Available

While there is never a single cause of suicide, the myriad of risk factors can add up. A survey of more than 11,000 U.S. veterinarians in 2014 found 9% had current serious psychological distress, 31% had experienced depressive episodes, and 17% had experienced suicidal ideation since leaving veterinary school. The data suggests nearly one in 10 U.S. veterinarians might suffer from serious psychological distress, yet only half are seeking help, says Dr. Jen Brandt, the AVMA's director of wellbeing and diversity initiatives. Industry leaders are trying to change that.

During National Suicide Prevention Week in 2019, Banfield Pet Hospital, one of the nation's largest employers of veterinary professionals, announced a training and awareness program for its more than 17,000 workers as well as a plan to close more than 1,000 of its clinics nationwide for a two-hour workshop to discuss mental health. As part of the training, Banfield launched a 30-minute online course that teaches employees how to recognize warning signs of suicide among colleagues and the best ways to help them. The training course, which begins with a self-assessment, is available free online for anyone in the veterinary industry.

Lisa Stewart-Brown, a clinical social worker who developed the training, says she hopes the widespread discussions will help break the stigma associated with talking about mental health and offer at least one solution to a complex and multifaceted problem. "If we can teach people what it looks like when someone is in emotional distress, and we can teach them how to break through and connect with that person emotionally and compassionately and lead them to professional help, I know we will help," she says. "It's not all puppies and kittens and wonderful experiences. There's a lot of pain involved."

Banfield's program is one of many being designed for struggling veterinarians and being implemented across veterinary hospitals, schools, and communities nationwide. The AVMA also offers a similar free one-hour online training course that helps veterinarians identify and refer at-risk colleagues. Tens of thousands of veterinarians have also found solace in Facebook support groups. In 2014, McArthur, the California vet who struggled with euthanasia, founded Not One More Vet, an online veterinary support group, days after the suicide of Sophia Yin, a popular and pioneering veterinarian who specialized in animal behaviors. Friends and colleagues have said that Yin, 48, who lived in California, may have been overwhelmed with personal and financial struggles and may have had trouble maintaining a healthy work-life balance. Her death had a ripple effect in the veterinary world and sparked widespread discussions about mental health and self-care. "She was the epitome of what we all strive to be—professional, put together, well-respected, intelligent, and seemingly happy," McArthur says. "To find out that she felt there was no other escape was very sad and shocking to me."

Not One More Vet now has more than 26,000 veterinary professionals worldwide, mostly from the U.S., which McArthur says signals the growing need for help. "There is so much comfort in knowing that you are not alone," she says.

If you or someone you know may be experiencing a mental-health crisis or contemplating suicide, call or text 988. In emergencies, call 911, or seek care from a local hospital or mental health provider.

A survey of more than 11,000 U.S. veterinarians in 2014 found 9% had current serious psychological distress, 31% had experienced depressive episodes, and 17% had experienced suicidal ideation since leaving veterinary school.

Chapter 2

INSIDE A DOG'S MIND

WHAT IS MY DOG THINKING?

Much research has been done about what goes on in their brains.

By Jeffrey Kluger

ODDS ARE YOU DON'T LOOK FORWARD TO SPENDING time in a magnetic resonance imager—and with good reason. The clanging, coffin-like machine seems purpose-built for sensory assault. But you're not Ninja, a pitbull mix, who trots into a lab at Emory University in Atlanta, catches a glimpse of the MRI in which she'll spend her morning, and leaps happily onto the table.

Ninja is one of the few dogs in the world that have been trained to sit utterly still in an MRI (the bits of hot dog she gets as rewards help) so that neuroscientist Gregory Berns can peer into her brain as it works. "What's it like to be a dog?" Berns asks, a question that is both the focus of his work and the thrust of his 2017 book *What It's Like to Be a Dog*. "No one can know with certainty. But I think our dogs are experiencing things very much the way we do."

That is what we want to believe. Our love affair with dogs has been going on for thousands of years, and there's no sign that it's flagging. According to statistics available from the American Veterinary Medical Association, the number of dogs owned in America went up by over 7 million between 2012 and 2018 (from almost 69 million in 2013 to almost 77 million in 2018).

Studying the Dog Mind

Most of the time, we give our dogs very good lives. We fancy that they understand us, and maybe they do: Come home sad and they'll nuzzle your hand. They don't have language, but they communicate volumes—with their eyes, with their barks, with their entire expressive bodies. "Dogs pick up on all kinds of things," says Juliane Kaminski, director of the Dog Cognition Centre at the University of Portsmouth, in England. "A system has developed in which both species—ours and theirs—attend to each other's cues."

That's something we know intuitively, but science is pushing harder to understand it empirically. Canine-research facilities have been established around the world, in Hungary, Austria, Germany, Italy, Australia, and elsewhere. In the U.S. alone, there are facilities at Duke, Tufts, and Yale universities. The Association for Psychological Science (APS), which typically concerns itself with the well-being of humans, devoted an entire 2016 issue of its journal *Current Directions in Psychological Science* to the canine mind. The findings were often impressive: Dogs can count—sort of—learning to look at two boards with geometric shapes attached to them and choosing the one that has more. They can read human faces—understanding the importance of using gaze to communicate and to direct our attention. They can excel at what is known as object permanence—understanding that when an object is out of sight, it has not vanished from existence. It takes humans a lot longer to learn such a basic truth of the world, which is why babies who toss food or a spoon from a high chair will so often not look down at the floor to try to find it.

A Dog's Brain

A dog's behavioral software is ultimately determined by the power of the hardware, and that means the brain. As with all animals, one of the most important determinants of brainpower is size—specifically, the size of the brain relative to the size of the body. By this measure, the human brain is huge, about one-fiftieth the mass of the average human body.

Compared with humans and their 1:50 ratio, horses are dullards, at 1:600, and lions are little better at 1:550. Dogs are comparative scholars, weighing in at an impressive 1:125—a ratio that holds across all breeds of dog, from the Chihuahua to the English mastiff. All the same, a brain that makes you a genius in the animal world is not much in the human one. Berns keeps the preserved brain of an adult German shepherd in his lab, and it starkly makes that point: the brain is the size of a tangerine. "Dog brains just don't have the real estate to do the things ours do," he says.

While the sizes of the two brains differ, the structures are strikingly similar. Over the past several years, Berns and his team have used that similarity to good effect. Much of their MRI work has focused on the part of the brain known as the striatum. Rich in dopamine, the striatum mediates reward, pleasure, and expectation—three pillars of a dog's world.

During Ninja's recent visit, the experiment involved determining how quickly she would learn to expect a food reward after being exposed to one of two smells. With the scanner running, a lab assistant released intermittent puffs of either isoamyl, a chemical that smells faintly like nail-polish remover, or hexanol, a carbon molecule that is detectable in grass clippings. After each puff of isoamyl, Ninja was given a hot-dog treat; after the hexanol, she'd get nothing.

Over the course of the test, the MRI looked for upticks in electrical activity in the striatum that would indicate increased anticipation after smelling the isoamyl. Analytic software would have to determine the answer since the naked eye could not pick out such small fluctuations, but Ninja offered clues that she had learned fast. After hopping down from the scanner, she was presented with two cups in the middle of a room, each containing one of the two chemicals. She trotted straight to the one with isoamyl.

Associating a smell with a treat is basic stuff, but Berns has used his MRI to probe more sophisticated parts of dogs' cognitive prowess: how they recognize the faces of humans and other dogs; how they recognize voices and words; even how they experience jealousy—when a treat was fed in pantomime to a dog mannequin. It's those questions about a dog's personality—does it love? does it empathize? is it loyal?—that most intrigue humans.

Do Dogs Have Feelings?

Investigators at the Messerli Research Institute in Vienna have tested the ability of dogs to behave prosocially—make an effort to help another dog when there is no reward in it for them. In the experiment, two dogs were placed in side-by-side cages, and one was trained to pull a lever that would deliver food to the other. The first dog got nothing and yet was usually happy to pull the lever all the same—provided the dog on the other side was a playmate. Unknown dogs were less likely to get the same treatment.

Studies of the many ways dogs are said to come to the aid of humans have produced less positive results. There is no end of anecdotal evidence of the phenomenon: dogs that run for help when their owners are injured, dogs that bark to alert the family to a fire, dogs that know when you're sad and nuzzle to offer comfort.

Lovely—and maybe hooey. "Your dog may notice something's amiss when you're sad," says Kaminski, "but the message they're sending when they nuzzle may be 'You're acting weird, and that scares me.' " As for dogs that bark when there's a fire in the house? "They might just have been frightened," says developmental psychologist William Roberts of Ontario's Western University.

In one study Roberts and a colleague conducted, an owner walked her dog across a field and then fell to the ground, feigning a heart attack. Two other humans were seated nearby, pretending to be reading. The owner lay still for six minutes,

and over repeated trials with different human and animal subjects, not a single dog sought help.

Roberts does not deny the truth of occasional stories of dogs that do seek help. But he thinks they're the exceptions. The majority of cases in which dogs do nothing "don't get reported because they are not interesting or unexpected."

If that's true, it leaves dogs as little more than, well, cats: amiable freeloaders on the human gravy train. But such a conclusion shortchanges them—by a lot.

Theory of Mind

Start with what we're learning about their intellectual octane, especially in terms of what's known as theory of mind, the ability to understand that humans and other animals have knowledge different from their own. The ability of dogs to follow pointing, and to do so innately, has generated a lot of interested in recent years. It doesn't seem like much of a skill, except when you consider that so many other animals make no sense of the gesture. The dog knows that the hand is used to indicate something else.

"When two humans do that, they take into account the common ground—a communicative context in which all this makes sense," says Kaminski. The same is true between dogs and humans.

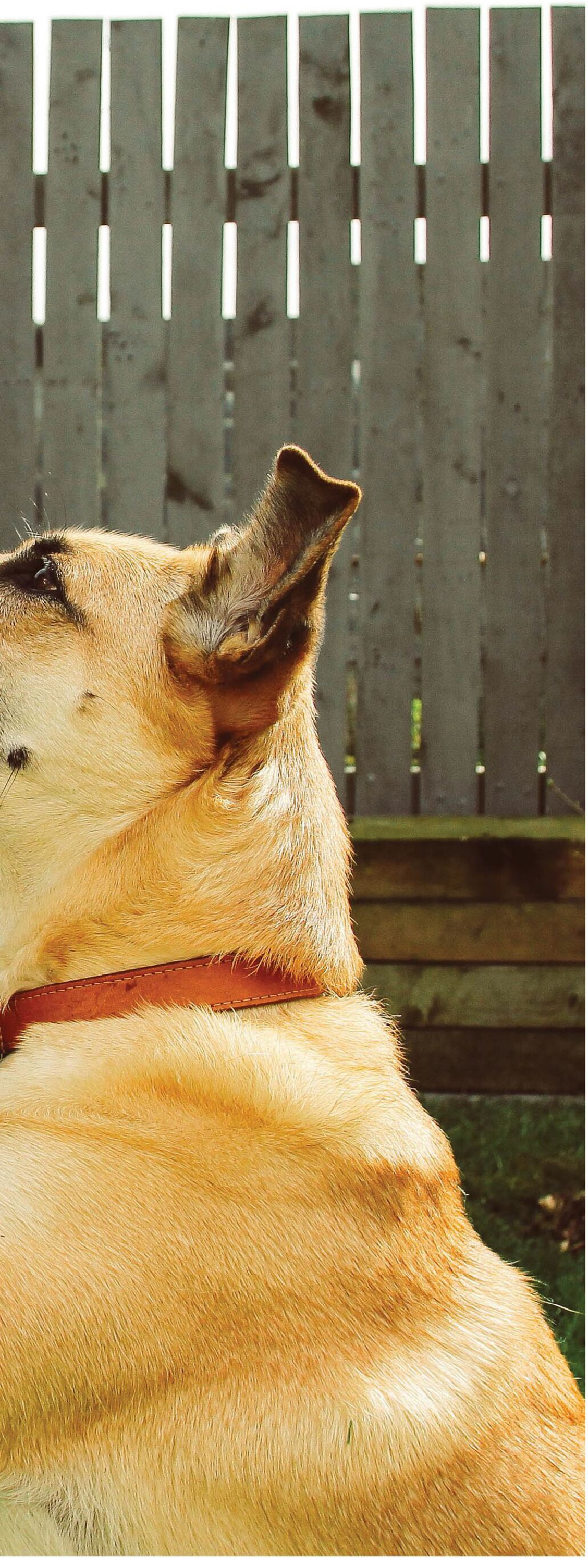
Not all canine researchers are sold on the significance of all of this. Behavioral scientist Clive Wynne of Arizona State University cites numerous species—including dolphins, elephants, and even bats—that learn the meaning of pointing if they've had sufficient exposure to human beings. "It's simply day-to-day experience with humans using their limbs to deliver things that matter," he says.

Object Permanence

The canine understanding of object permanence is less open to dispute. Dogs perform well on so-called visible-displacement tasks: When they watch an object being placed in one of several containers and are then allowed to look for it, they know which container to investigate first. Dogs also master invisible displacement, in which, say, a toy is placed in a container, the container is moved behind a screen and then brought back out, but the toy is no longer in it. Some dogs follow that chain of events, rightly concluding that if they go behind the barrier they will probably find the toy.

In a 2013 study, behavioral psychologist Thomas Zentall of the University of Kentucky also found that dogs are capable of understanding that not only is the existence of objects permanent but so are the characteristics. When a dog biscuit or other item of interest was carried behind a barrier and

Dogs can count—sort of—learning to look at two boards with geometric shapes attached to them and choosing the one that has more. They can read human faces—understanding the importance of using gaze to communicate and to direct our attention.



then carried back out, the dogs would give it a glance as it reappeared. But if it was secretly replaced by a larger or smaller version of the same object or one that had changed in color, they would stare much longer. The conclusion: A 2-inch dog biscuit should remain 2 inches and a yellow ball should remain yellow, and dogs understand that.

How Dogs Experience Time

What, however, does all this say about dogs' emotional experience of the world? They exhibit what seems unmistakably to be joy—in the jumping, yipping thrill they show when family members come home after a long absence. That may even suggest that they have an awareness not just of the past and the future but also of the rate at which time passes. Closed-circuit cameras show that they seem to prepare as the time comes for humans who have been out all day to return, stirring from a nap, checking the front door, becoming restless and excited.

A sense of time as a linear thing—that the current state is not the only state—is an abstraction that human babies take a long time to learn, which partly explains tantrums. A present moment without a cookie means an eternity without cookies.

Willpower

Dogs may even teach us something about a common human problem: lack of willpower. Research has attributed this to what is known as ego depletion, with self-control failing over time the same way an overworked muscle does. In studies conducted in 2010 and 2015, investigators found that self-discipline in dogs breaks down the same way ours does. In one experiment, dogs that had been required to perform a 10-minute sit-and-stay exercise were less likely to complete a puzzle task given to them next than dogs that had spent the same 10 minutes doing what they pleased.

The reason may be depletion of glucose in the prefrontal cortex. Dogs given glucose before the second task stayed with it longer after a sit-and-stay period. Dosing up on sugary drinks is not the way to improve self-discipline, but the research does show us one more thing we share with our favorite nonhuman species.

Similarities Create Our Bond

Ultimately, though, our curiosity about dogs will always be driven mostly by our love for dogs. Berns believes that it was juveniles on both sides of the human-dog divide that were responsible for initiating the interspecies bond. Wolf pups would be the ones likeliest to approach and appeal to early nomadic humans; and girls and boys—then and now—are the humans who love puppies most. Dogs are like us in their joy and empathy and inexhaustible curiosity, and we—at least when we're in their presence—become more like them. We are both better species for our very long union.

YOUR DOG IS AN EFFICIENT LEARNER

Dogs are better than humans at eliminating meaningless tasks when accomplishing a goal.

By Jeffrey Kluger

DOGS DON'T WEAR PANTS—AND IT'S hard to know how things would work out if they tried. But one thing is clear: If dogs did wear pants, they would use either a belt or suspenders, but definitely not both.

That, in some ways, puts them ahead of us. According to a 2016 study published in the journal *Developmental Science*, both domesticated dogs and one species of wild dog do a better job than human beings and chimpanzees of ignoring bad instructions and eliminating unnecessary steps when trying to solve a problem. It's a difference that says a lot about the social order of all of the species.

The study, led by Angie Johnston and Paul Holden of the Yale University Canine Cognition Center, was designed to explore the learning behavior known straightforwardly as overimitation, a feature of our own species far more than any other. When an adult teaches a small child how, say, to solve a puzzle or operate a device like a television, the child will faithfully perform all of the steps nearly all of the time, even when repeated trials plainly show that some of those steps are unnecessary. A landmark 2005 study involving both young chimpanzees and 3- to 4-year-old children revealed that both sets of subjects will go through as many as five steps—some ultimately proving to be unnecessary—to retrieve a reward from a box, with the humans actually performing less well than the chimps at eventually skipping the irrelevant ones.

Dogs would need a great deal of training to solve a five-step puzzle, if they ever mastered it at all. For that reason, the Yale researchers decided to keep things simple, presenting both domesticated dogs and wild dingoes with a plastic box that had both a lever on the side and a lid. The box contained a treat and the experimenters first demonstrated to the animals how to move the lever and then lift the lid to get at the reward. The lever, however, was useless and the lid could be opened without it. In some cases, the puzzle was made of transparent plastic, revealing both the contents and the box's internal workings; in other cases it was opaque.

As is the case with all dog studies, not every subject was quite up to completing the experiment. "One trial was excluded from analysis for puzzle error (the dog flipped the entire puzzle over)," the researchers wrote. Most of them, however, did get all the way to the end, and the results were both impressive and, for humans, a little humbling. After watching the box being demonstrated, up to 75% of the dogs and dingoes correctly learned and imitated the two-step process to get the treat. It took just four trials, however, for a significant number of them to learn to skip the useless lever, with 59% of the dogs and only 42% of the dingoes continuing to use it.

The appearance of the box—clear or transparent—made no difference at all to the dogs. The dingoes—for reasons that were uncertain—actually did a better job of catching wise to the uselessness of the lever when they couldn't see through the box than when they could.

If dogs are more efficient learners than humans, it hardly needs to be said that they are not better learners, and for a species with as elaborate a social system as ours, efficiency in learning is not necessarily a good thing. Johnston points out, for example, that children quickly learn that washing their hands before dinner and brushing their teeth after are not necessary to achieving their focal goal—eating—but their parents insist on it and so they comply. More subtly, once kids are out in the world there are uncountable social conventions—shaking hands, saying "please," holding a door for the person behind you—that may be irrelevant to getting immediate needs satisfied but are essential to the maintenance of social order.

"Although the tendency to copy irrelevant actions may seem silly at first," said Johnston in a statement accompanying the paper's release, "it becomes less silly when you consider all of the important but seemingly irrelevant actions that children are successfully able to learn." From that kind of learning, a complex culture follows.

HOW DOGS FIND THEIR WAY

To put it simply, the nose knows.

By Jeffrey Kluger

A PITY YOU CAN'T ASK A DOG FOR THE shortest route home when you're lost. Because if you could, odds are it would know a lot more than you think.

In 2015, a dog walked 11 miles from its new home to return to a former foster owner. The feat was especially remarkable because the dog had been taken to its new location by car and had to find its way back on foot—meaning it hadn't had a chance to learn the route.

"An 11-mile distance is actually not terribly long for a dog," says Dr. Bonnie Beaver, the former executive director of the American College of Veterinary Behaviorists and a professor at Texas A&M University. "If the dog had walked both from and back to his home he'd be following his own scent trail." In this case, the dog was instead probably following an equally compelling smell: that of its owner, a type of navigation that is entirely possible over long distances as long as the wind is right.

Dogs extend their scent range by moving among overlapping circles of familiar scents—much the way cell phone coverage relies on interconnected footprints from different cell towers. A dog that wanders out of its own immediate range might pick up the scent of, say, a familiar dog in the next circle. That might point it to a circle that contains a familiar person or tree or restaurant trash can, and so on.

The overall temperament of a dog can play a role in navigation too. A dog that travels a great distance to get home is likely trying to return to its owner, since the dog-human bond is a powerful one.

HOW A DOG 'SENSES' THE WORLD

How do dogs and humans stack up?

Hearing

HUMANS An average human can hear 20,000 vibrations per second.

DOGS Dogs can hear vibrations of 35,000 per second, so they hear higher pitches than humans, and they hear sounds from much longer ranges. Hearing is their second-most dominant sense.

Sight

HUMANS A human's dominant sense is sight. In 2017, a research team at Linköping University in Sweden reported in *PLOS ONE* that humans could discriminate objects at roughly a threefold distance in both bright and dim light as compared to dogs.

DOGS It is a fallacy that dogs see in black and white. According to researchers at Neitz Labs at the University of Washington, dogs see colors in the same way that a person with red-green color blindness does.

Smell

HUMANS With 5 to 6 million scent receptors, it's pretty good, but it is far less acute than that of other animals.

DOGS A dog's dominant sense is smell. They have 100 million or more scent receptors and can use their noses to track and navigate, and to detect explosives, narcotics, and the scents of their masters.

Taste

HUMANS Humans have approximately 9,000 taste buds. We may think we are food-obsessed, but we have far fewer than some other animal species. Which animal has the most? Surprisingly, it's catfish.

DOGS Dogs' sense of taste is poorly developed: They have only 1,700 taste buds. If left on their own, they'd eat just about anything (which is why they like to dig in the trash).

Touch

HUMANS Humans are sensitive to touch and use it to communicate, bond with others, and sense danger.

DOGS It is believed that canines use touch similarly to humans, so you both are likely benefitting from all the snuggles.

ARE DOGS REALLY THAT SMART?

Other animals might be better at completing cognitive tasks.

By Jamie Ducharme

YOUR DOG MAY BE A GOOD BOY OR girl—but he or she is not as smart as you think, a 2018 research article in the journal *Learning & Behavior* suggests.

Dogs have a unique set of cognitive abilities, but they're not inherently smarter than other animals, says the paper. "Dogs are special, but they're not exceptional," says co-author Britta Osthaus, a senior lecturer in psychology at Canterbury Christ Church University in the UK. "They're smart, but they're not stand-out smart."

The research was inspired by lead author Stephen Lea's prior role as editor of the journal *Animal Cognition*, Osthaus says. Lea, now an emeritus professor of psychology at the University of Exeter in the UK, saw plenty of papers about the special abilities of dogs, but noticed that other animals were rarely tested using the same types of cognitive tasks. Working with Osthaus, Lea decided to set the record straight by analyzing more than 300 existing studies on animal cognition in an effort to compare dogs to other equivalent species.

Dogs fit into three main classifications, the paper says. They're carnivorans, an order of animal mostly made up of meat-eaters; they're social hunters, meaning they work together to find and retrieve food; and they've been domesticated by humans.

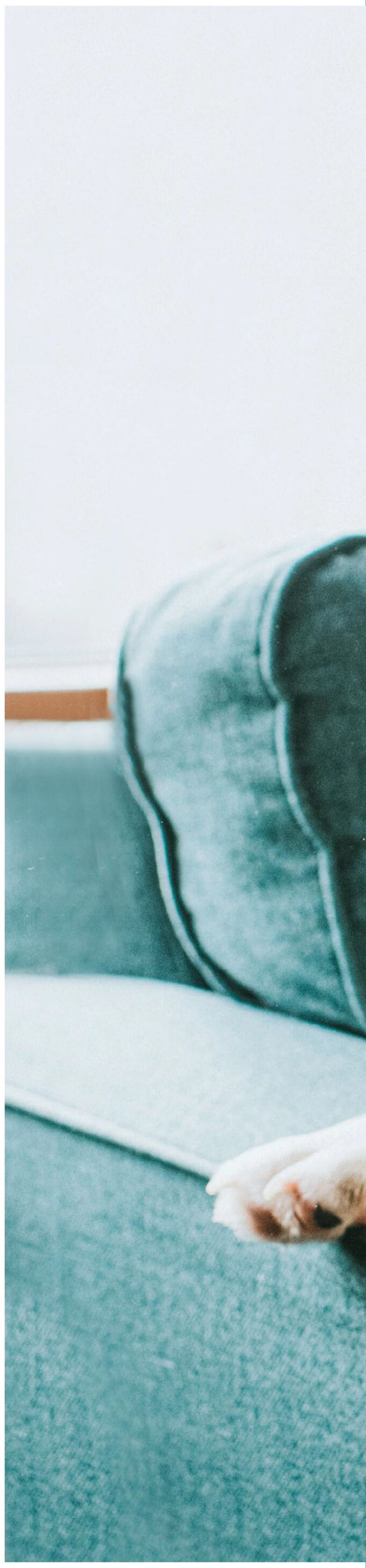
For their paper, Osthaus and Lea compared dogs to species in each of those three categories, such as wolves (a close ancestor), wild dogs and hyenas (carnivorans and social hunters), cats (carnivorans and domesticated animals), dolphins and chimpanzees (social hunters), and horses and pigeons (domesticated animals). Across many cognitive categories—from the ability to draw information from sensory stimuli to problem-solving to social intelligence—researchers found that other animals could match or exceed dogs' abilities.

"They're the only species at the middle of these three categories, so they are rather special," Osthaus says. Because of their overlapping classifications, canines are uniquely well-suited to certain tasks, such as serving as guides for the blind or assistants to police officers. But in each of these three categories, "you will find other animals or other species that will do as well as dogs, or maybe even better." And many animals could be considered special when examined through the lens of their specific qualities, she adds.

The popular opinion that dogs are exceptionally smart probably persists for a few reasons, Osthaus explains. Dogs are easy to study, for one thing, so there's simply more information about their cognitive abilities than those of other species. And because humans have an especially close relationship with dogs, there probably is an element of confirmation bias in the scientific literature. "We like our dogs to be very clever, and we like them to be appreciated," Osthaus says.

But treating dogs like a superlatively intelligent species may actually be doing them a disservice, she says. "We need to take into account that dogs are dogs. We need to be fair toward dogs, to know what their limits are, so we don't expect too much."

The research also suggests that other animals may deserve more credit than they're given. "If we know a lot about the cognition of pigs or goats, then we need to look into their welfare and how we keep them," Osthaus says. "If they have needs for social interaction and for mental stimulation, then we need to provide that."



Across many cognitive categories—from the ability to draw information from sensory stimuli to problem-solving to social intelligence—researchers found that other animals could match or exceed dogs' abilities.

CAN DOGS SNIFF OUT DISEASES?

A recent study suggests that dogs may be able to detect COVID-19.

By Jamie Ducharme

A DOG'S SENSE OF SMELL IS THOUSANDS OF TIMES stronger than a human's. Their superior snoots are why canines are used in law enforcement; once they're trained to detect certain scents like narcotics and explosives, they can pick up traces that human noses could never notice. The same skill translates to medicine. Research shows that dogs can sniff out evidence of cancer and other diseases with impressive accuracy—and a 2022 study adds more evidence to suggest the same is true of SARS-CoV-2, the virus that causes COVID-19.

In the study, which was published in the journal *PLOS ONE* and builds on a smaller one published in 2020, dogs from French fire departments and the United Arab Emirates's Ministry of the Interior were trained to recognize the smell of compounds associated with SARS-CoV-2 in human sweat samples. "The welfare of the dogs was fully respected, with toy rewards and a total absence of work-induced physical or mental fatigue," the authors write.

The researchers then collected sweat from the armpits of almost 350 people seeking COVID-19 testing at sites in Paris. About a third of the people tested positive via PCR tests.

The dogs' overall sensitivity (their ability to pick up on positive samples) was 97%, while their overall specificity (their ability to determine that a sample was negative) was 91%. That puts dogs' diagnostic capabilities in the same league as gold-standard PCR tests, says study co-author Dr. Dominique Grandjean, a professor at France's Alfort School of Veterinary Medicine.

Almost any dog can be trained to do this type of detection in a matter of weeks, Grandjean says. "We could have hundreds or thousands of dogs doing this for almost [no money], and they would be as efficient as PCR," Grandjean says.

Dogs could potentially be deployed in crowded areas, like airports or conferences, or in other places where traditional testing is not widely available, to sniff out positive cases. They could also be used to test people who don't respond well to invasive nasal swabs, such as those with autism or neurodegenerative diseases, Grandjean says.

There's already some proof of concept. Finland's Helsinki-Vantaa International Airport experimented with COVID-sniffing dogs in 2020, and a study published in May 2022 found their accuracy was around 98%, though there weren't enough positive cases to draw firm conclusions about sensitivity. Miami International Airport also tested COVID-sniffing dogs in 2021, as did multiple schools in Massachusetts.

Dogs can also detect viral compounds in sweat from Long COVID patients up to 18 months after they first caught the virus, according to a study co-authored by Grandjean and published in the *Journal of Clinical Trials*. Canines in that study detected evidence of the virus in samples from 23 out of 45 Long COVID patients in the trial, but not among any of the sweat samples that came from 188 people without Long COVID. That accuracy rate may be an underestimate, says co-author Emilie Seyrat (who has Long COVID), because some samples had to be sent through the mail during the summer and thus may have been compromised by heat and time.

Still, the results are intriguing. Scientists don't fully understand why some people develop chronic symptoms after a case of COVID-19, but one of the main hypotheses is that remnants of the virus linger in some people's systems and potentially continue to replicate, causing lasting health problems.

The fact that dogs can smell virus-related compounds more than a year after people initially got sick supports that idea, says Dr. Dominique Salmon-Ceron, an infectious disease specialist at Hôtel-Dieu Hospital in Paris and another author on the Long COVID study. "Our results add to the argument that the virus can probably persist" in the body, she says.

The study wasn't designed to diagnose anyone with Long COVID, since participants were already known to have the condition. And detecting viral persistence isn't the same as diagnosing someone with a complex, multi-system disease like Long COVID, Salmon-Ceron says.

But dogs can add to scientists' understanding of the condition and validate patient experiences. Many Long COVID patients struggle to get proper care because they can't prove they had COVID-19, particularly if they got sick early in the pandemic, before testing was widely available.

"Nobody was believing them, except some doctors," Salmon-Ceron says—and some dogs.

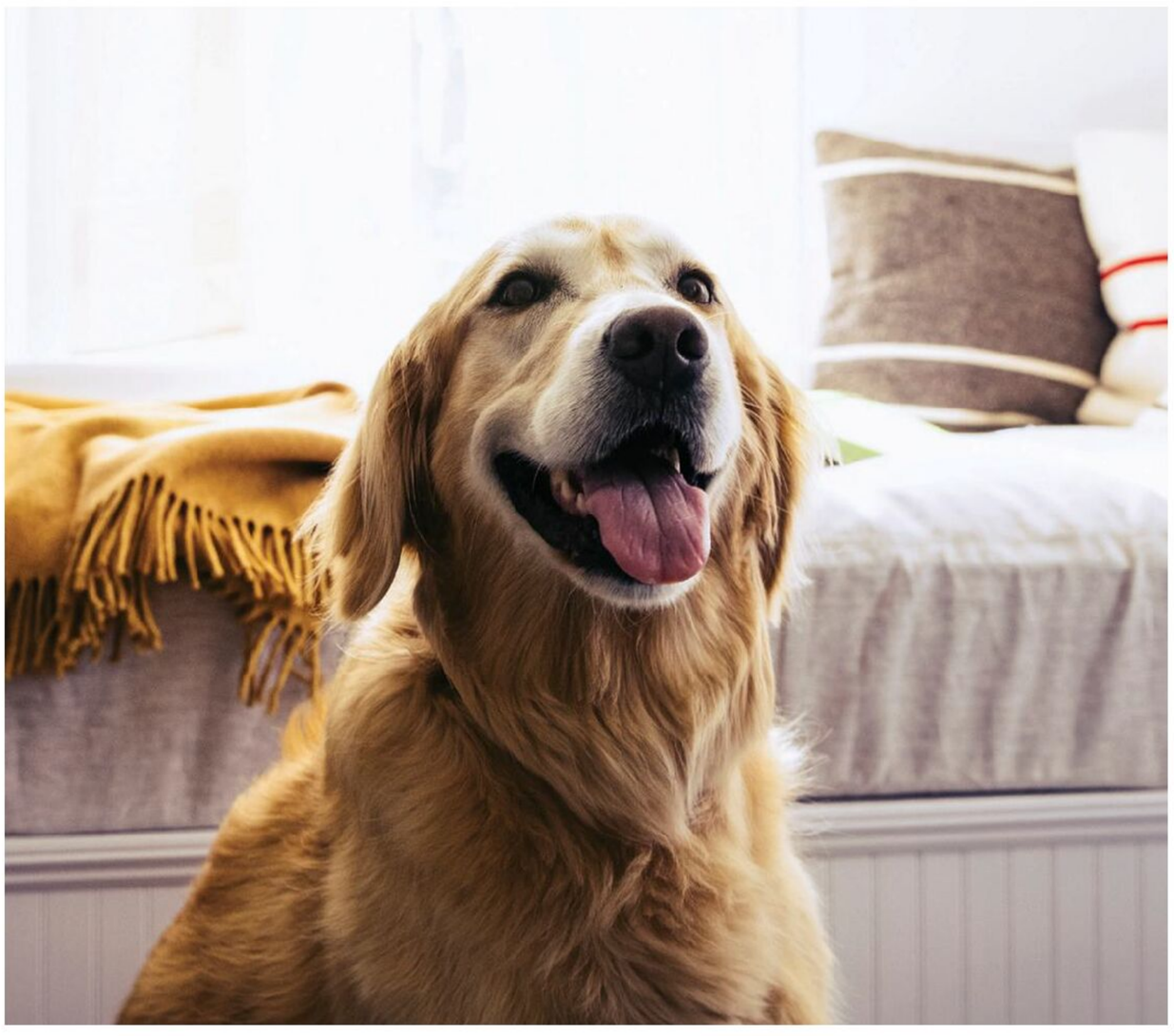
Chapter 3

YOUR DOG & YOU

DOES YOUR DOG LOVE YOU BACK?

Rest assured: A study reveals that dogs can react to your needs.

By Jamie Ducharme



MOST DOG OWNERS WOULD DO JUST ABOUT anything for their pups. And a 2018 study published in the journal *Learning & Behavior* says the feeling may be mutual.

Plenty of research shows that dogs respond to signs of their owners' distress, such as crying, but it hasn't been clear to what extent pups will try to make their owners feel better. The study suggests that "dogs will actually take an action trying to alleviate that distress," says Julia Meyers-Manor, an associate professor of psychology at Ripon College in Wisconsin and a co-author of the study. The results indicate that your pooch may empathize with and care for you even more than you know.

The researchers ran an experiment with 34 dog-owner pairs from the Twin Cities area in Minnesota. The dogs were of different breeds and ranged from 1.5 to 12 years old.

Your Dog Can Tell When You Are Angry

Wonder no more if your dog knows whether or not you are having a bad day; a 2015 study published in *Current Biology* shows Fido may have an idea of how you feel.

A group of researchers trained a group of 11 dogs to differentiate between angry and happy human faces. During the study, the dogs were shown either the upper or lower half of a person's face in various emotional states. Then, to test the dogs, researchers showed them different images from those used in training, selecting either the other half of a face the dogs already saw or an altogether new person's top or lower face.

In the end, the researchers found that dogs rewarded for picking happy faces more quickly learned to distinguish between happy and angry faces over dogs rewarded for picking only angry faces. That, according to the study's abstract, "would be predicted if the dogs recognized an angry face as an aversive stimulus."

The researchers say their results and those of other less conclusive tests offer definite clues about how dogs read our faces.

"With our study, which was inspired by these previous attempts, we think we can now confidently conclude that at least some dogs can discriminate human facial expressions," Corsin Müller, then animal-behavior researcher at Messerli Research Institute at the University of Veterinary Medicine Vienna and the author of the study, told LiveScience.com.

—By Maya Rhodan

Each of the owners sat in a small room, closed off from his or her dog by a door. The door, which had a window that allowed dogs to see their owners, was fastened to its frame by magnets, so dogs of any size could push it open.

To test how dogs would respond to suffering, half of the owners were instructed to say the word "help" in a distressed tone of voice every 15 seconds, making crying noises in between. The other half said "help" in an emotionless tone, and hummed "Twinkle Twinkle Little Star" between words. The researchers then observed how many of the dogs made an attempt to open the door to be with their owner.

Roughly half of the dogs ended up opening the door—but there was no significant difference between dogs who heard their owners crying versus humming. So does that mean dogs have no empathy?

Not necessarily. While about the same number of dogs in each group opened the door, dogs responding to owner distress did so much faster—after an average of 23 seconds, compared to almost 96 seconds in the humming group. Among dogs who did open the door, those who scored highly on a separate owner bond test, which involved measuring how much a pet gazed at its person during a frustrating situation, tended to open the door quickly, signifying that dogs who feel attached to their owners want to help.

"Some of this was that dogs want to be with their people," Meyers-Manor says. "But they want to be with their people even quicker if the person is crying than if they're humming."

The findings also suggest some solace for people whose dogs did not open the door. The dogs in the crying group showed significantly more signs of distress—including pacing, panting, and whining—than pooches in the control group, suggesting that they may have been too anxious or upset to complete the task. "That tells us that no one should be concerned if their dog doesn't open the door if they're crying," says co-author Emily Sanford, a doctoral candidate in psychology at Johns Hopkins University. "It might be that they love you too much."

Plus, Sanford adds, it stands to reason that dogs would show a range of personality traits, just as humans do.

"There are some people who just don't have as strong empathy toward other people," Sanford says. "So we are not surprised at all to find that there's a range in other species besides our own."

And while the study exposed some interesting findings about canine behavior, Meyers-Manor says one thing remained constant: Each owner thought his or her pet was a very good dog.

"Immediately after we finished each person-and-dog combo, almost every one of them would sit and explain how their dog really would rescue them," she laughs. "That happened whether they were in the control group and humming, or crying. Everyone wanted to tell us how much their dog would actually help."

WHY DOGS DOMESTICATED

Ever wonder how your dog became so friendly? Researchers are working to uncover how it happened.

By Melissa Chan

DOGS WERE THE FIRST ANIMALS TO BE domesticated, with evidence suggesting they were tamed about 15,000 years ago. But the history behind how the four-legged creatures went from wild wolves to pampered pets remains hazy, scientists say.

"It's a puzzle," said Greger Larson, a professor of evolutionary genomics in the archaeology department at the University of Oxford in England. "Rather than thinking about it as an event or a single overnight incidence, it's a long-term multigenerational change."

Larson is part of an international team of scientists working to nail down when, where, and how many times dogs were domesticated—all questions that experts agree that, well, they just can't agree on yet.

"There's a heck of a lot of speculation. The field really lacks a consensus," Larson said in an interview with TIME. "There's still a heck more that we don't know. You need a lot of information from a long time ago, and it's tough to really get that."

The latest theory is that the domestication of ancient wolves may have taken place in both Asia and Europe, with about 1,000 to 2,000 years between the two instances, according to the team's research, which was published in the journal *Science* in 2016.

The research involved scientists poring over canine fossils and modern DNA samples. It found a deep split between modern East Asian dogs and those from the Middle East and Europe. The divide may have taken place between 6,400 and 14,000 years ago. The hypothesis is significant, according to Larson, because the dual domestication—something unlikely to have happened randomly—suggests that external factors may have forced wild and often aggressive wolves to forge a working relationship with humans for survival.

"We're, so far, in the beginning of this," Larson said. "If it happened just once, you're kind of thinking it's a lucky happenstance in space and time. If it happens twice, independently, on two different sides of the old world, then you're looking at an environmental driver."

Among some possible scenarios: Wolves may have been trying to take advantage of resources humans had at the time, or humans may have just been introduced to the animals in an area in which they didn't previously live.

Scientists agree that wolves began associating more closely with people about 15,000 years ago. Around that time, people were burying dogs, which could be taken as a possible sign of affection. Sometimes, canines were buried alongside humans, evidence shows. Dogs were considered an important member of the human family, helping people hunt, about 8,000 years ago.

Ultimately, that relationship led to the idea of dogs as pets—tamed animals kept for companionship inside the home—which can be seen as early as 2,000 years ago during the Roman years, Larson said.

In 2023, 66% of U.S. households own a pet, and about 65.1 million households in the country have a dog, according to the American Pet Products Association, a trade group.

"We have a long-term relationship with dogs," Larson said. "They're our oldest friends, if not our best friends."

A Sound Case for Rescues

According to 2019 data from the American Society for the Protection of Animals (ASPCA), approximately 390,000 dogs are euthanized in shelters every year. That data alone is a compelling argument to adopt a dog rather than purchase one from a breeder, but there are other good reasons to avoid supporting the purebred establishment.

When competitive dog shows first emerged in 19th century Britain, they were less about the dogs and more about establishing a social hierarchy. Women often weren't allowed to show their dogs with men, and most competitions made working-class pet owners show their dogs after their richer counterparts, "when all the good dogs had gone home," says Michael Worboys, a specialist on the social history of pedigree dog breeding in Victorian Britain.

There was also the issue of breeding itself, which took off after the 1859 publication of Charles Darwin's treatise *On the Origin of Species*. By allowing only the most aesthetically pleasing animals to mate, breeders believed they could make more-perfect creatures. Those efforts strengthened the idea that all sorts of living things could be improved—evolution with intent—which in part laid the groundwork for eugenics, says Katherine C. Grier, author of *Pets in America*.

These days if Victorian-style dog breeding is controversial, it's mostly because of the canine health problems that can result if it's done sloppily. Still, it remains an essential component of competitive dog shows. The urge to make the "perfect" pet—even if only for show—is doggedly persistent.

—By Olivia B. Waxman

HAVING A DOG IS GOOD FOR YOUR HEALTH

Dogs owners get more exercise than non-dog owners.

By Julia Zorthian

DOGS ARE MORE THAN JUST CUDDLY COMPANIONS— research shows that pets bring health benefits to their owners.

Researchers have shown that dog owners are more active than those who don't own dogs, packing in more steps per day on their walks or just regular playtime. A 2017 study showed that older dog owners take 2,760 more steps per day on average compared to non-owners, which amounted to an additional 23 daily minutes of moderate exercise.

And a 2017 study in the *Journal of Epidemiology and Community Health* showed how enduring that phenomenon is: Dog owners are also significantly more active during the winter.

Researchers from University of East Anglia (UEA) and the Center for Diet and Activity Research at the University of Cambridge used data from the European Prospective Investigation into Cancer and Nutrition Norfolk cohort, and they focused their study on 3,123 participants between the ages of 49 and 91. Nearly 20% of those participants owned a dog, and they all wore an accelerometer for seven days to track their movements.

The researchers found that the people who didn't own a dog were sedentary for about 30 more minutes a day on average than those who walked their dogs. Everyone who participated in the study was less active on shorter days, colder days, and days with more precipitation. But the researchers discovered that, even during days with bad weather, dog walkers were more active than non-dog walkers were on the nicest days.

"We were amazed to find that dog walkers were on average more physically active and spent less time sitting on the coldest, wettest, and darkest days than non-dog owners were on long, sunny, and warm summer days," project lead Andy Jones, a UEA professor, said in a press release.

Dog walkers got in an average 12 more minutes of activity on the wettest days, for example, than those who don't own dogs got on the driest days. Overall on the driest days, dog walkers were sedentary for an average of 632 minutes, compared to non-dog owners' 661 minutes.

Jones said this finding could have important implications about how to motivate people to stay active as they age.

"Physical activity interventions typically try and support people to be active by focusing on the benefits to themselves, but dog walking is also driven by the needs of the animal," Jones said in the release. "Being driven by something other than our own needs might be a really potent motivator and we need to find ways of tapping into it when designing exercise interventions in the future."

Five Reasons to Play with a Dog

1. It strengthens your bond

While it is vital that a human owner create strong bonds with a new puppy, playing with your dog at any age reinforces trust and understanding. And when you set aside one-on-one time to interact with your dog, you are making your pet feel like a special part of your life. How your dog wants to play may change as it ages, so modify it as you go along. Just like humans, dogs never stop learning.

2. It burns their excess energy

Dogs get bored! And if your dog is in the house alone for several hours a day, it will build up energy that can manifest in destructive behaviors like chewing or barking. Stave off these problems by playing a quick game of fetch or tug-of-war when you get home.

3. It's a stress-reliever

When your dog plays, its brain releases mood-boosting endorphins. The same goes for you. Play also gives your dog a sense of purpose and confidence, which carries over into all other aspects of their daily lives.

4. It reinforces good behavior

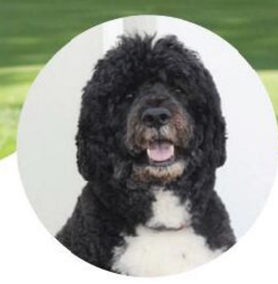
It may seem like play isn't training, but in many ways it is. For example, if your dog tugs too hard or gets overly excited while playing, stop and wait for them to calm down. This teaches them to exhibit positive behaviors rather than negative ones, and it shows them you are the boss. Most dogs love to play, so they will soon learn to behave if they want you to engage.

5. It keeps you both physically fit

Even short bursts of playtime burn calories and contribute to your dog's overall physical and mental fitness. And you'll benefit too.

FAMOUS DOGS WE LOVE

These special pups stole our hearts.



Bo

Bo, the Obama family's Portuguese water dog, and President Barack Obama share a playful moment outside the oval office in 2009.

Toto

Judy Garland, dressed as Dorothy in *The Wizard of Oz* film, poses with Toto, a cairn terrier in 1939. Toto's real name was Terry.

Comet

Child actor Ashley Olson with one of the dogs who played the family pet, Comet, on the hit TV series *Full House* in 1994.

Sinbad

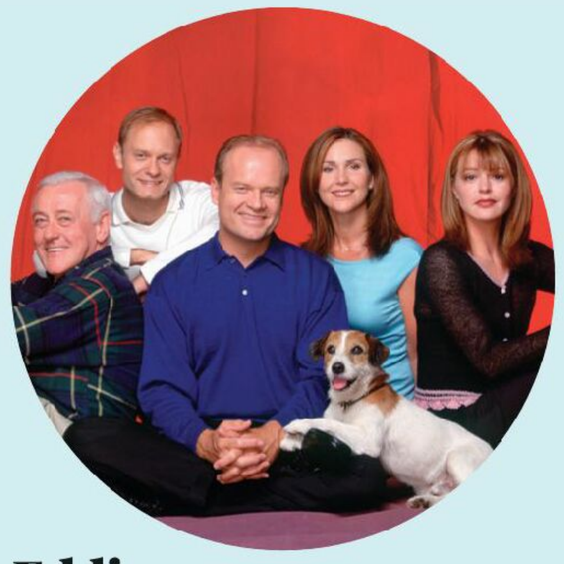
Sinbad was a mixed breed who was classified as a non-commissioned U.S. Coast Guard officer that lived on the USCGC *Campbell* from 1937 to 1948. He even saw action in World War II.

Petey

The beloved canine character Petey on *Our Gang*, later known as *The Little Rascals*, was played by two American pit bull terriers during the show's run in the '20s and '30s.

Lassie

A rough-coated collie who played Lassie poses with the *Lassie* TV show actors Jon Provost, Hugh Reilly, and June Lockhart around 1955.



Eddie

Eddie Crane, a wire-haired Jack Russell terrier, poses with the season 7 cast of the TV show *Fraser* in 1999. Eddie's real name was Moose.

Winn-Dixie

Winn-Dixie at a screening for the *Because of Winn-Dixie* film in 2005. Winn-Dixie, a Berger Picard, was played by several canine actors, including Lyco (shown).

Commander

President Joe Biden and first lady Jill Biden pet their German shepherd, Commander, on Christmas Day 2021. Commander was a gift from the president's brother and sister-in-law.

The Royal Corgis

A young Princess Elizabeth, the future queen, poses with one of her beloved corgis in 1946. She owned more than 30 of them in her lifetime.

Barney

President George W. Bush holds up Barney, a Scottish terrier, on the South Lawn of the White House in 2003. Barney joined the Bush family in 2000. He was a gift from the president to Mrs. Bush.

DO DOGS AND WORK MIX?

Bringing your dog to work has its benefits as long as the practice is managed carefully.

By Jennifer Calfas

ANNA JENTOFT DOESN'T GO TO WORK AT AMAZON'S headquarters in Seattle alone.

Franny, her one-year-old black labradoodle, is almost always by her side, sitting at Jentoft's desk while she's on calls and greeting other Amazon employees during their workdays.

Franny is one of more than 10,000 dogs welcome on remote calls or at Amazon's Seattle headquarters, thanks to the company's dog-friendly work policy. The retail giant has been dog-friendly since day 1—in the early days, a husband-and-wife team brought their corgi, Rufus, to work with them, and he became a productive member of the team. Today, there's a building on the campus named in his honor.

Jentoft finds having Franny with her at work brings her comfort. "If I just need to take a breather after an intense meeting, I'll take her out for a walk, or we'll sit on the floor and play for a few minutes," she said.

"It brings me comfort."

Dogs Can Provide Support

Dogs in the workplace provide more social support for employees, as well as more opportunities for coworkers to interact in a positive way, according to a number of studies. Social support, or the feeling of being cared for, also serves as "a key factor in whether people with serious mental illness return to work or remain employed," according to a May 2017 study published in the *International Journal of Environmental Research and Public Health*.

Logistically, too, employees who bring their dogs to the office are able to avoid missing work in the middle of the day to go home to feed their pet or having to rush home at the end of the day, said Jennifer Fearing, the co-author of *Dogs at Work: A Practical Guide to Creating Dog-Friendly Workplaces*. These furry workmates also could provide an opportunity for collaboration across departments, she said.

"You discover, when walking across the office to pet a cute dog, cross-pollination between your work," she said. "You really wouldn't have had the idea to work together, but because you struck up a conversation about the dog, you discover an opportunity that produces some synergy that wouldn't have otherwise existed."

Amazon points to the employee experience as the main consideration with its dog-friendly policy. Dogs have been

Taking Your Dog to Work? Here's What to Do

Prep Your Space:

Put out a dog bed, a cozy blanket, food and water bowls, and quiet toys (puzzle and chew toys are great; avoid squeakers).

Make sure you can safely contain your dog in case you need to leave it alone—if you are in a cubicle, use a short tether or a baby gate.

Will there be other dogs nearby? If so, make sure they all get along.

Prep Your Dog:

Visit the vet and make sure your dog is in good health and its vaccinations are up to date.

Ensure your dog is properly trained and will follow simple commands (sit, stay, come, down, heel, no).

Since some of your coworkers may not like dogs, make sure your dog will only approach people who ask to meet or pet it.

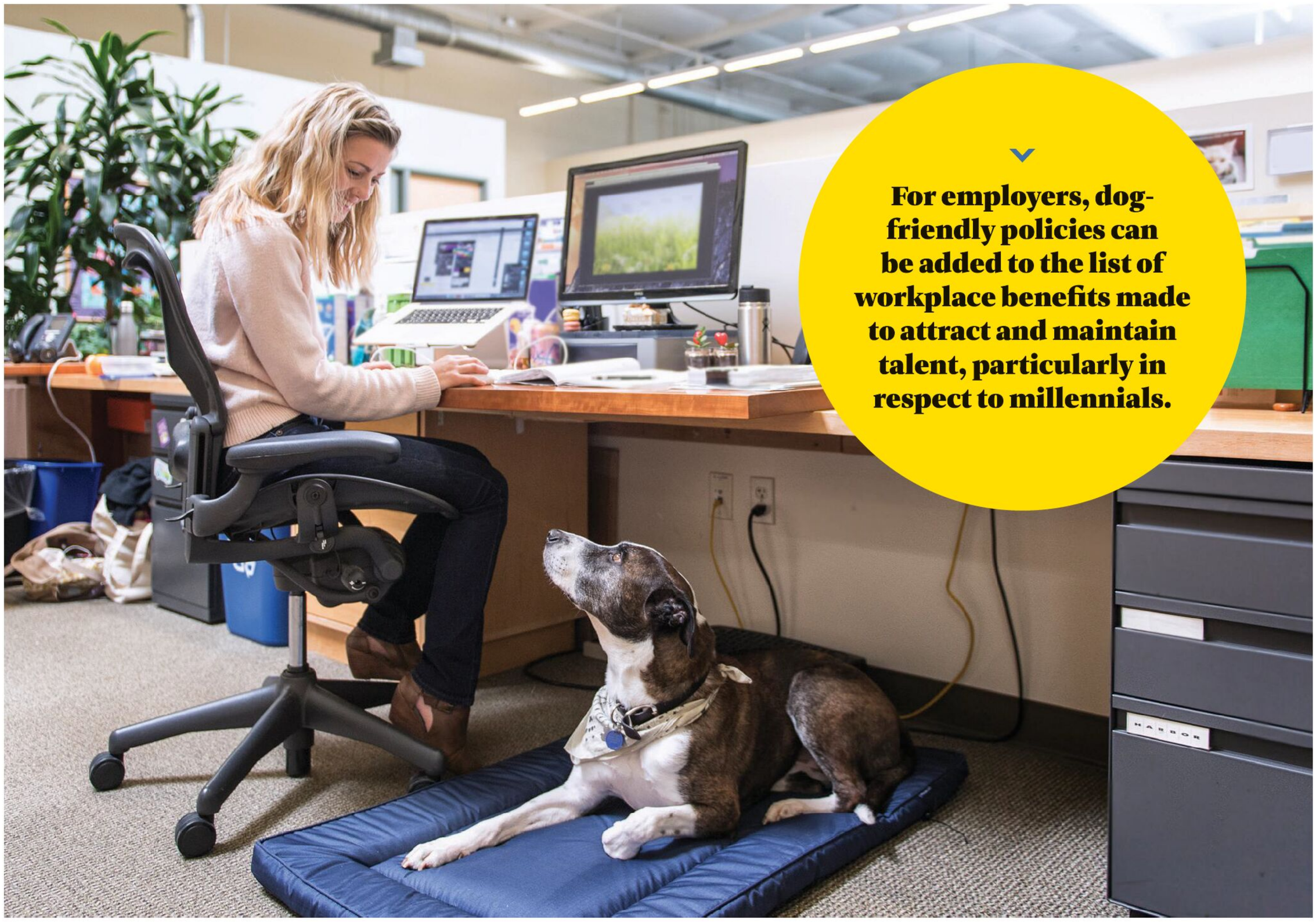
Prep Yourself:

Pack a daily supply of food and treats.

Plan to exercise your dog before you go to work.

Consider your schedule—work in potty and play breaks, and arrange outdoor time during lunch.

Familiarize yourself with your company's pet policy, and follow it.



For employers, dog-friendly policies can be added to the list of workplace benefits made to attract and maintain talent, particularly in respect to millennials.

central to Amazon's workplace for over 20 years; Rufus the corgi even ceremoniously clicked the mouse to launch some of Amazon.com's first pages, Allison Leader, a communications representative from Amazon, said.

This extra benefit helped encourage Jentoft to get a dog in the first place. Now it's a policy she would strongly value if considering other employment opportunities—at Amazon or elsewhere—in the future. "Now that I've had a taste of what it's like, it would be hard for me to go somewhere where I can't have Franny with me," Jentoft said.

For employers, dog-friendly policies can be added to the list of workplace benefits made to attract and maintain talent, particularly in respect to millennials. "That helps attract and retain potentially top talent within your organization, so there's essentially a bringing them through the door and keeping them in house aspect to instituting one of these policies that the employer can see the increased benefit of having them," said Edward Yost, the manager of employee relations and development at the Society of Human Resource Management.

Managing Dogs at Work

But not all dogs are perfect for these environments—and not all employees enjoy dogs. Barking can ensue at the cubicle next door while you're on an important call, and the occasional accident could damage company property. And some people simply just don't like dogs or are allergic. "The only person that is almost guaranteed to benefit from bringing the dog to work is the owner of that dog," said Anna Akbari, a sociologist and author who writes about well-being and happiness. "The likelihood of everyone else in the office having that same bond and affinity for their animal is very low."

As such, workplaces should consider nuanced protocols before implementing a dog-friendly environment, Fearing said. If a dog shows aggression or bites a person or another dog, the animal won't be allowed back to the office, for example, and each dog will need to be up-to-date on their shots. Other steps could include requiring a dog's bedding to be washed once a week, as well as the implementation of HEPA filters to provide allergy relief. Additionally, sections or floors of a workplace should be determined as no-dog-zones, and employees taking their dogs to their desks should take the shortest route possible to get there, Fearing, the *Dogs at Work* co-author, said.

The careful implementation of these rules and policies is how a dog-friendly workplace can be productive and efficient, says Fearing. That's why Take Your Dog to Work Day—an unofficial holiday where some companies allow employees to bring their four-legged friends to the workplace for one day—terrifies Fearing.

"It's mayhem," Fearing said. "That's not what dog-friendly workplaces look like."

DO YOU FACETIME YOUR DOG?

Video chatting with your dog may do more for you than your pet.

By Melissa Chan

DOGS CAN UNDERSTAND WHAT HUMANS SAY and how we say it, according to a 2016 study. But while man's best friend is smarter than a lot of other animals, dogs are still not that tech savvy.

Scientists who studied brain activity in some dogs say canines can distinguish words and the intonation of human speech the way humans do. A group of trained dogs in Hungary helped researchers make that discovery by undergoing fMRI brain scans while listening to audio recordings of their trainers. The researchers found that certain words sparked activity in different hemispheres of the brain.

But while evidence shows dogs can register and understand audio recordings, experts say pet owners should expect their four-legged friends to blatantly ignore them during video chats.

"When you hear someone live or you hear someone via headphones, there's not much of a difference for dogs, but seeing someone live or on a screen seems to be very different," said Attila Andics, a research fellow at Eotvos Lorand University in Budapest who led the dog cognition study published in the journal *Science*.

Andics and his team have previously run several studies on how dogs process small screens. They found that while dogs realize they are looking at a human's face on screen, the stimulus isn't enough for them to recognize it's their owner on the screen. "Realistic size matters," he said. "If the size is not realistic, you become something small in a little box."

Andics added that more studies using brain imaging will attempt to unravel the mystery behind exactly what dogs can understand, including tests to find out whether the animals can process grammar and syntax. "This is a very exciting field of research," he said. "Human language research is just enormous. This is just the first study on dogs. We will see what ways open up for us."

CAN YOUR DOG REALLY CALM YOU DOWN?

It's likely, and research shows that the feeling may be mutual.

By Mandy Oaklander

DOGS ARE SO CONNECTED TO THEIR OWNERS THAT they share similar stress levels, according to a 2019 study published in the journal *Scientific Reports*. When people are stressed out, researchers found, their dogs tend to be too. Certain aspects of your personality—how neurotic you are, mainly—may also affect how stressed your dog is.

Researchers in Sweden surveyed the owners of 58 Shetland sheepdogs and border collies about their personality traits and those of their dogs. They then outfitted the dogs with a special collar for a week to monitor their activity levels.

To measure stress levels, researchers took human and canine hair samples and analyzed concentrations of cortisol, a stress hormone, in both.

The dogs' activity levels didn't affect how stressed they were. Neither did the dogs' personalities (measured by the validated Dog Personality Questionnaire, which their owners completed) or how many hours a day their owners worked.

What did seem to matter was how stressed their owners were—cortisol levels in dogs synced up with those of their humans—and certain human personality traits. Curiously, people who were more neurotic actually had dogs with lower cortisol levels. "There is some indication that humans scoring high on neuroticism form a strong attachment bond to their dogs," write the study authors, "and that these individuals, to a greater extent than others, use their dog as a social supporter." That, in turn, means that they may serve as a strong social supporter for their pet. "It could maybe boil down to different types of amounts of interaction, but this needs of course to be studied further," wrote study co-author Lina Roth, associate at Linköping University in Sweden, in an email.

These links were especially strong in female dogs (studies in other species have suggested that "compared to males, females show a higher emotional responsivity," the authors write) and in competing dogs, who spend a lot of time working with their owners.

Can Dogs "Hear" Our Emotions?

A 2018 study from the Department of Veterinary Medicine at the University of Bari Aldo Moro in southern Italy that was also published in the journal *Scientific Reports* suggests they can. The researchers analyzed how dogs processed human nonverbal emotional sounds: sadness, anger, disgust, surprise, fear, and happiness.

Like humans, dogs use the left side of their brain to control the right side of the body and vice versa. Previous research has shown that dogs process positive sounds with the left side of their brains and negative sounds on the right.

A food dish was set up in the center of a room with one speaker on the right and another on the left. As each dog ate, the researchers played nonverbal emotional sounds (screams, laughter, sobbing, etc.) and recorded the dog's reactions. If a dog was indeed reacting to a positive emotional sound, they'd turn their head to the right, and for negative emotional sounds, they'd turn their head to the left.

The videos revealed that the dogs did turn their heads to the right for happy sounds and turned their heads to the left when they heard sounds of fear, anger, and sadness. Other reactions, like tail-wagging, yawning, and heart rate supported the findings. But the dogs didn't seem to react to surprise or disgust in the same way—it could be because those two emotions are more relative to human experience. What startles a dog doesn't necessarily startle a human, and what we consider disgusting can be attractive to a dog (most humans don't love to roll in poop like some doggies do).

IS IT BAD TO SLEEP WITH YOUR DOG?

If you love to snuggle up and snooze, you'll like the answer.

By Amanda Macmillan

GOOD NEWS, DOG LOVERS: LETTING your four-legged friend into the bedroom does not worsen your sleep, according to a Mayo Clinic study—and it may actually help you rest easier. But before you cuddle up too close, know this: Researchers still caution against snoozing in the same bed.

The study, published in 2017 in *Mayo Clinic Proceedings*, included 40 adults, all of whom slept with a dog either in their bed or elsewhere in their bedroom. Both humans and canines wore motion-tracking devices for seven nights, and humans answered questions about their quality of sleep and where their dogs spent the night.

The researchers found that having a dog in the bedroom did not necessarily compromise sleep quality, as had previously been suspected. On average, people with dogs in their rooms (but not on their beds) maintained 83% sleep efficiency—a comparison of time spent asleep to total time in bed. (A score of 80% is generally considered satisfactory.)

Sleeping with a dog in the bed, however, was linked to a slightly lower sleep efficiency: an average of around 80%. Though that is considered a satisfactory score, people with dogs in their beds woke up more throughout the night than those whose dogs slept elsewhere.

Human sleep companions, on the other hand, did not cause similar disturbances. Those who slept two-in-a-bed had better sleep efficiency than those who slept alone. "Presumably, humans accommodate the needs of their bed partner in an effort to promote sleep in a manner that even the most well-trained dog does not," the authors wrote in their paper.

Lead author Dr. Lois Krahn, a sleep medicine specialist at the Center for Sleep Medicine at the Mayo Clinic's Arizona campus, says that for some owners, sleeping with an animal companion in the room can be comforting.

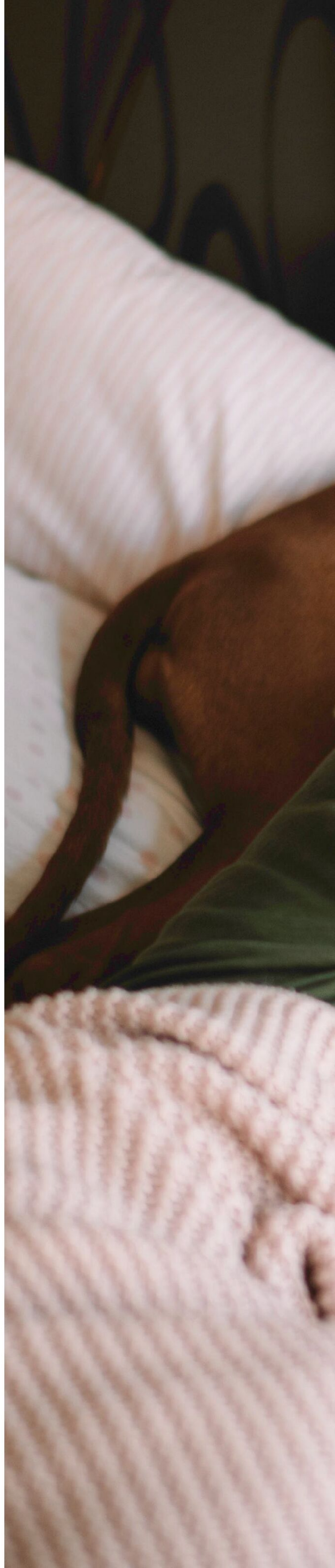
"To have a purring cat or a well-behaved dog nearby may be very relaxing and conducive to sleep," she said in a 2014 video interview after conducting a previous similar study. "Provided everyone sleeps well, it can be a benefit."

But when people have multiple pets, she cautioned, it multiplies the chances for disruptions—like when dogs snore, move around, or act out their dreams. That's important, she says, because the number of people who have more than one pet has increased over the last decade. (In Krahn's study, only single-dog households were included.)

The new study was small, did not contain a control group, and most participants were healthy, middle-aged women—so the results may not apply to other populations. Because of the small size of the study, the researchers also weren't able to determine whether the breed or size of the dog made any difference. But the findings are still welcome news to anyone who loves snoozing with a pet but doesn't want to sacrifice sleep.

"My main recommendation is for people to take a look at their setup and carefully consider whether it is truly working or not," Krahn said, "and not allow loyalty to their pet to blind them to consequences that aren't desirable to their sleep."

And if you're wondering how your pup feels about all this, don't worry too much. "Regardless of location or an additional human bed partner," the authors wrote in their paper, "dogs seemed to rest well."



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Chapter 4

CARING FOR YOUR DOG

ADOPTING A PUP? HERE'S WHAT TO DO.

Making sure your dog is happy and healthy is a big responsibility. Make sure you're ready.

Picture a perfect moment with your dream dog. Maybe it's tossing a Frisbee at the park on a sunny summer day. Maybe you and your pup are snuggled on the couch bingeing your favorite shows. Or maybe your little pal masters a clever trick. The feel-good rewards of dog ownership are many—if you take good care of your dog. Good canine care starts long before you pick up a dog from the shelter or breeder.

Responsible owners always start by assessing whether they are ready—financially, physically, and emotionally—to be their pet's No. 1.

Assess Whether You Can Handle It

Responsible owners always start by assessing whether they are ready—financially, physically, and emotionally—to be their pet's No. 1.

According to *Petfinder.com*, an online database of nearly 11,000 animal shelters and adoption organizations across North America, the cost of owning a puppy for the first year can range from $395 to $2,455, and after that, it runs $326 to $1,967 per year. These costs do not include grooming, boarding, training, or emergency vet care. Costs for emergency vet care can run into the thousands of dollars, depending on the nature of the pet's illness or injury.

A 2021 survey done by *LendingTree.com* revealed that just under half (45%) of pet owners did not have enough cash on hand to pay for a $1,000 emergency pet bill. This is concerning because if a pet owner can't or won't pay for emergency pet care, it's likely the pet will be euthanized. Bottom line: Make sure you can really afford a puppy, or an unfortunate event may put you, your dog, and your vet in a heartbreaking situation. Pet insurance is an option, but keep in mind that you'll be paying monthly premiums for it.

Do you have time to train, exercise, socialize, and bond with a puppy? If you work long hours, travel a lot, or have social or family responsibilities, you'll have to rely on others to "do the work" for you, which isn't fair to you or your pup. If you have the time, are you and your family members committed to the lifestyle changes and consistent training that's required to raise a happy, well-behaved puppy? If not, you should probably pass.

Research What Breeds Are Best for You

Dogs vary widely in size, temperament, intelligence, tolerance of children/other pets, space needs, barking levels, and grooming needs, and human owner situations vary as well. For example, although you may be in love with a sweet, gentle-giant Newfoundland, you may not like to vacuum daily or mop up their drool. Or maybe a dachshund puppy's brown eyes have stolen your heart—but will your neighbors complain when your little watchdog barks every time a door slams or a vehicle approaches? Assess your situation and look for a canine companion who will fit in.

The Essentials:

At the bare minimum, all puppies need food and water bowls, a collar, and a leash.

If you adopted a pet who needs a lot of exercise/space to run, make sure you have a fenced-in yard and the fence and gate are in good condition.

After you establish your house-training plan (see page 60), get an appropriately sized crate if you are crate-training and/or puppy pads if you decide to go that route.

What to feed your pup: Ask the shelter or breeder for recommendations and determine what you can afford to spend each month. Do the research—there are endless food options in the pet marketplace, from budget-friendly kibble to expensive, breed-specific raw food subscriptions.

Other Items You'll Need:

- Healthy treats for training
- Comfy bed for lounging
- Breed-appropriate toys (see page 59)
- Doggie car seat or seat-belt adapter
- Grooming brush and dog-friendly shampoo
- Chews and no-chew spray
- Enzyme stain and odor remover
- Poop bags and a scooper
- Gate or playpen
- Toothbrush and toothpaste
- Flea and tick collar

Essential Non-Tangibles:

- Make an appointment with a vet right away (see page 58)
- Get recommendations for a good puppy training class
- Research and interview groomers if your dog will need frequent primping
- Ask a friend or family member to be your go-to in case of emergency
- If you don't have kids, find a family who is willing to help your pup get comfortable around children
- Set up a doggie playgroup so your pup can socialize with other dogs
- Find a safe dog park with appropriate size/breed areas
- If you work outside of the home, research and interview doggy day cares or dog walkers

If this all seems like a lot, it is. But ensuring you provide the right environment for your new family member is key to happiness—for both of you.

WHAT TO EXPECT AT THE VET

Routine check-ups are essential to your dog's health, just as they are for humans.

MAKE SURE YOU GET YOUR NEW DOG TO THE VET as soon as possible. Ask friends and family for recommendations and select one that is close to your home. Make sure they have an after-hours policy—emergencies can happen 24/7. Book your initial appointment in advance—good vets are very busy.

Before You Go

Before your first visit, decide if you'd like to microchip and include the costs in your budget. Plan for the costs of spaying or neutering and vaccinations too. Consider a pet insurance policy—although it won't cover everything, pet insurance can be a blessing if your dog is involved in an accident or gets very ill.

The vet will ask you to bring the dog's paperwork and a stool sample to the first visit. Be prepared to discuss what you know about your pup's history, what it has been eating, the environment in which it is living (other pets, kids, crate-training, etc.), how house-training is going, how well you think it is adjusting to its new home, and any other questions or concerns you have.

The First Appointment

A good vet will weigh your dog, listen to its heart and lungs, take its temperature (rectally), examine the dog from head to paws (including a thorough skin examination), check its mouth and teeth, and feel its abdomen and lymph nodes. The vet will explain the specific vaccination and spaying/neutering protocols for your dog.

If your dog needs any initial medications, make sure you follow the dose instructions closely.

Why So Many Shots?

If you want your dog to have a long and happy life, keep up with its vaccinations. A vet determines the type of vaccines and the dosing schedule based on a variety of factors, such as the breed, size, age, lifestyle, and health condition.

Plan for the costs of spaying or neutering and vaccinations too. Consider a pet insurance policy—although it won't cover everything, pet insurance can be a blessing if your dog is involved in an accident or gets very ill.

According to the American Society for the Prevention of Cruelty to Animals, core vaccines for dogs include:

Canine parvovirus, a highly contagious virus that attacks the gastrointestinal tract and can cause death within 2 to 3 days after symptoms appear.

Distemper, an airborne virus that affects a dog's respiratory, gastrointestinal, and nervous systems that is often fatal, especially for puppies.

Canine hepatitis, a virus that can permanently affect the function of your dog's spleen, kidneys, lungs, and liver.

Rabies, which according to the Centers for Disease Control and Prevention, is fatal in 99% of cases, making it the world's deadliest disease.

A Note About Dental Care

Have you ever had a toothache? It's not fun for humans, and it certainly isn't for dogs. It is likely that your vet will suggest regular teeth cleanings for your dog after it is a few years old. Cleanings can be expensive, but good oral care does a lot more than clear up stinky breath. Do not skip them.

According to the American Kennel Club, poor canine dental hygiene can cause gingivitis (inflamed gums) and periodontal disease that can cause tooth loss and damage to your dog's heart, kidneys, and liver.

VACCINATIONS ARE IMPORTANT

Keeping up with your pet's shots is the responsible thing to do.

By Jeffrey Kluger

IF YOU ARE CONCERNED ABOUT VACCINATING YOUR DOG because it may cause autism, don't be. There is no credible evidence that vaccinations cause autism, and not vaccinating your dog can expose it and other animals, including the humans around them, to a host of diseases.

The vaccination-autism connection was born of a fraudulent 1998 study led by former British physician Andrew Wakefield, purporting to show a link between autism and the measles-mumps-rubella vaccine. The paper was later retracted by the journal that published it and Wakefield was stripped of his right to practice medicine in the United Kingdom.

Dogs do not get autism. "We've never diagnosed autism in a dog," Brooklyn veterinarian Stephanie Liff told the *Brooklyn Paper* in 2017 in response to an uptick in owners withholding vaccinations, "I don't think you could."

As with parents who refuse to vaccinate their children against disease, pet owners who refuse to vaccinate their dogs are potentially causing widespread harm. The unvaccinated child is not only vulnerable to preventable diseases including measles, mumps, whooping cough, and polio, but also presents a danger to the people around them as a potential carrier for those and other diseases. It takes vaccination rates as high as 95% to create what's known as herd immunity, the protection afforded to people who can't be vaccinated—including infants, the very old, and people with compromised immune systems—by all the other people in the community who can be, thus denying the disease any infectious toehold.

The same is true of canine vaccines. Rabid dogs, for starters, are a threat to everyone. More worrisome, leptospirosis, a vaccine-preventable bacterial infection carried by rats, spreads readily to dogs and then to humans. A serious outbreak struck the New York-New Jersey area in 2017. The disease is often fatal in dogs. In humans it can lead to liver failure, respiratory problems, meningitis and, in extreme cases, death. Ask your vet if your dog is at risk.

"Outbreaks of disease among unvaccinated dogs can be devastating to a community," said Brian Hare, professor of evolutionary anthropology at Duke University and founder of the Duke Canine Cognition Center. "Unvaccinated dogs going to day cares or dog parks, or even walking around their neighborhoods, are at a much higher risk of contracting, and spreading, these diseases … If you love your dog and the people around you, vaccinate them."

The terms of the canine-human contract were clear from the moment the two species tumbled for each other more than 15,000 years ago. They would offer us companionship, protection, a willingness to work, and a fierce loyalty, and we would offer them food, shelter, and protection. Canine anti-vaxxers are in increasing violation of the last of those terms. Dogs, it's worth remembering, have the smaller brains; humans have the much bigger ones. It's always a good idea to use them.

THE RIGHT TOYS FOR YOUR DOG'S NEEDS

Dogs vary widely in size, temperament, and play styles, and their choice of toys reflects it.

Tug Toys

Some dogs with strong hunting instincts, like bulldogs, enjoy tug-of-war matches because the "tug" mimics what they'd do to keep other dogs from taking their prey. Tug play is a great way to bond with your pet and to teach it about rules and boundaries—it does not cause aggression. But if your dog is susceptible to back injury, like dachshunds are, tugging is not a good idea.

Chew Toys

Dogs are food-motivated creatures, and it's likely that their love of chewing is because of it. According to the "Canine Corner" blog at PsychologyToday.com, researchers believe that dogs like to chew on bones because when their ancestors went through times of food shortage, they chewed on animal bones and were rewarded with the nutrient-rich marrow inside. But note: The U.S. Food & Drug Administration does not recommend giving dogs bone treats (animal bones that are processed and sold commercially) or real chicken or turkey bones. Rubber bones or vet-approved rawhides will satisfy chew instincts and are probably your safest bet.

Fetch Toys

Some dogs were bred for their ability to pick up items for their owner, and the instinct is strong. Retrievers love fetch (it's in their name), as do border collies, Australian shepherds, poodles, and English springer spaniels. If your dog likes it and has a lot of excess energy, you'll both have a great time.

Plush Toys

Snuggling with plush toys can trigger maternal instincts in a dog. Toys also may mimic the sound a dog's prey would make when captured. Although that may be unsettling to human owners, dogs love to hear and feel that squeak. But if your pup tends to rip plush toys to shreds, the squeaker obsession can be a choking hazard.

Puzzle Toys

Intelligent dogs love a good challenge, and puzzle toys give them the satisfaction of a job well done. A Kong is a great intro toy for a pup—you can fill it with dry treats, dog-safe peanut butter, or a combo of both. Puzzle toys also help ease anxiety and can help control overeating.

TIPS FOR HOUSE-TRAINING YOUR DOG

Spoiler alert: The most important variable in potty training is YOU.

THERE ARE ARTICLES ALL OVER THE internet about which dog breeds are easily potty-trained and which ones are impossible. Although it's true that some dogs are a little more stubborn than others, in most cases humans can win this battle. All it takes is careful planning and commitment.

First, accept that accidents are going to happen. The average human child is not potty-trained until about the age of 3, and it usually takes months of practice before it happens. Dogs, too, need practice—and the help of patient, nurturing humans—to pull it off. According to the American Kennel Club, puppies can't fully control their bladders until they are about 4 months old, and after that, they can only hold it for the same number of hours as their age in months plus one. So a 4-month-old puppy can only hold it for five hours.

1. Establish routines on the first day and stick to them

Select a spot outside that will be their "potty spot." Make sure it is close enough to your exit door so if you catch your pup going inside, you can quickly pick them up, take them outside, and let them finish the job.

Commit to being close to your dog whenever you are in the house together. This will help you monitor its behaviors and immediately react if it starts to eliminate, sniffs and circles the floor, or wakes up from a nap. If you work from home, tether your dog to a piece of furniture within eyeshot. If you need to leave your pup alone to go to work, have someone stop in and take your pup to its potty spot every few hours.

Stick to the schedule until your pup is fully trained. Dogs like to know what to expect. Go out as soon as you get up in the morning, set up a two-hour window for outdoor breaks, and go out right before bed. Work in breaks after naps, meals, and exercise too. Remove the water dish about two hours before bedtime, but be prepared to take a very young pup out every few hours during the night.

2. If you must leave them alone, do not give them the run of the house

Use a crate or gate off an area in the kitchen or a bathroom big enough for them to move around, but not big enough for them to soil and move to another area.

Do not leave them alone for longer than they are able to hold their bladder.

3. Give positive feedback—lots of it

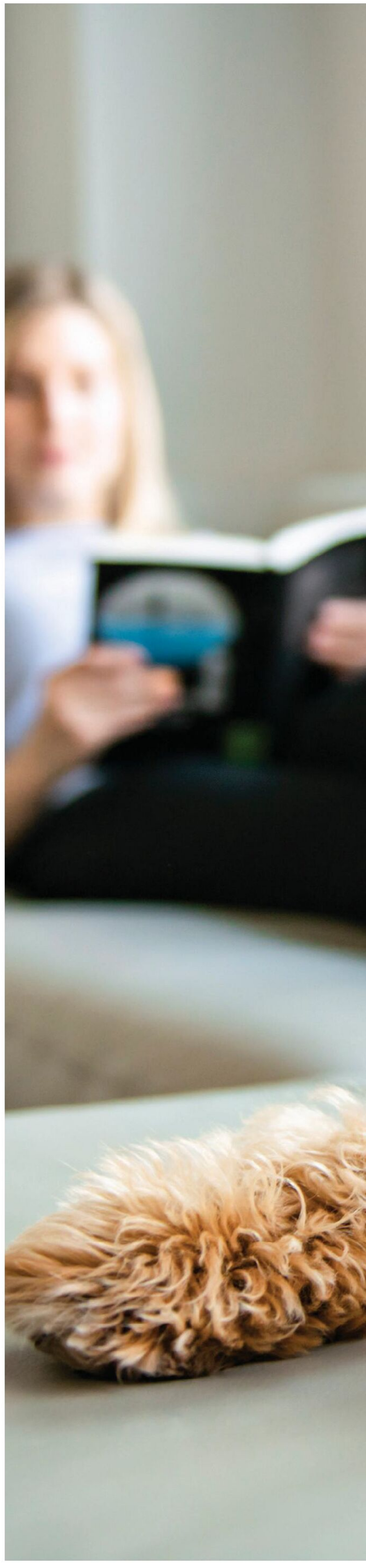
Your pup is wired to please you, so provide ample praise—think winning the lottery-type excitement—for every success. Little treats work wonders.

There will be frustrating moments, but do not fuss, punish, or "rub its nose in it." Doing so will only confuse them. Calmly clean up the mess—enzyme-based cleaners work best.

Enroll in a rewards-based puppy class as soon as possible. It will help strengthen your bond and help your pup learn that when it does what you want, everyone is happier.

4. Avoid quick fixes

Although paper training, puppy pads, and doggie litter boxes (yes, they exist) may offer short-term relief from the grind, most professionals advise against using them. These methods can be confusing to your pup and can even prolong the training process by teaching them that sometimes it is OK to do their business indoors.



Set a schedule and stick to it until your pup is fully trained. Dogs like to know what to expect. Go out as soon as you get up in the morning, stick to a two-hour window for outdoor breaks, and go out right before bed.

DOG-PROOF YOUR HOME

Watch out for items that could be a hazard to your pet.

Human Pharmaceuticals

If you drop a pill, don't wait until cleaning day to sweep it up. And do not give your dog human medications unless directed by your vet. Aspirin, ibuprofen, acetaminophen, and blood-pressure, sleep, and ADHD meds are all harmful to dogs. And make sure you keep your dogs' medication out of reach: Some of them contain flavorings that dogs find attractive, and they may get into the stash and overdose.

Houseplants

Make sure the plants that give you joy won't make your dog sick. Big offenders include aloe vera, jade trees, lilies, pothos, sowbread, philodendron, sago palm, elephant ear, and cornstalk plants. Opt for spider plants, African violets, parlor palm, Boston ferns, prayer plants, or orchids instead.

Yard & Garage Items

Pet-proofing the outdoors is especially important if you give your dog free roam of the backyard. Look out for: cocoa mulch, lawn and plant fertilizers, poison ivy, and plants that contain burrs or thorns. Make sure your fence and gate are secure—you want to keep your dog in and keep other animals out. Stash antifreeze, ice-melting products, and pool chemicals on high shelves in the garage.

Indoor Chemicals

Seemingly innocuous items can contain chemicals that make your dog sick, including fabric softener sheets, cleaning products that contain bleach, mothballs, liquid potpourri and essential oils, paints, rat poisons, and both homemade and commercially made Play-Doh.

Human Toys

Bringing a curious pup into the family can be an enriching experience for all, but you'll need to monitor your kids' toy situation closely. Small pieces can pose a choking hazard.

If you suspect that your dog has been exposed to or ingested toxic materials or poison, call your vet or the ASPCA Animal Poison Control Center at (888) 426-4435.

LOOK OUT FOR HOLIDAY CANDY

Candy-centered holidays are especially dangerous for dogs.

By Jamie Ducharme

YOU ALREADY KNOW THE HOLIDAY SEASON'S STEADY stream of sweets and treats takes a toll on your waistline—but experts say it may also pose a risk to your pets.

Veterinarians see an increase in food-related illnesses—particularly those caused by chocolate, which pets can't digest well—from Halloween through Christmas, says Michael Topper, former president of the American Veterinary Medical Association. "You do see an uptick of this, just because it's more readily available," Topper says.

In a 2017 study published in the journal *Vet Record*, University of Liverpool researchers analyzed U.K. electronic veterinary medical records and discovered a "significant peak" in canine chocolate poisoning during the Christmas season. Chocolate boxes, cakes, liqueurs, Santa figurines, and advent calendars were common culprits, according to the study.

Chocolate is dangerous to pets because it contains theobromine, a diuretic and stimulant; caffeine; fat; and a variety of sugars and sweeteners, Topper explains. "Dogs and cats are more sensitive to theobromine and caffeine than people are, so it affects them more. It can result in more nervous system stimulation, [it] may cause them to urinate more, and [it] may cause their hearts to race," he explains. "The high fat content can cause anything from diarrhea to even pancreatitis."

The severity of the illness will depend on the concentration and amount of chocolate consumed, as well as the size of the animal, Topper says. (While we typically think of dogs getting chocolate poisoning, Topper says cats are susceptible, too—they just don't tend to eat much of the sweet stuff.) "If they eat a whole pack of concentrated baking chocolate you probably have a problem," Topper says, "Versus, 'Oh, they ate a couple bonbons off the table.'"

While you should never allow your pets to eat chocolate—or "people food" in general—Topper says it's especially important to stay vigilant during the holiday season, when treats tend to be scattered around the house and parties are common. If you fear your pet got into something it shouldn't have, look out for symptoms including hyperactivity, restlessness, excessive drinking and urination, staggering, diarrhea, vomiting, and, in extreme cases, seizures.

Nip the problem in the bud, Topper says, by keeping your treats—including those wrapped up as holiday gifts—out of reach of pets, and reminding any party guests to keep their snacks to themselves.

WHAT YOUR DOG IS TRYING TO TELL YOU

Ever wished your dog could talk? Its body language indicates what its feeling.

YAWNING
"I am feeling stressed."

SMILING
"I'm relaxed."

BARING TEETH
"I do not like this. Give me some space."

STANDING, STARING FORWARD, LIFTING A PAW
"What is that?"

LICKING
"This is making me very anxious."

STANDING, LEANING FORWARD, WAGGING ITS TAIL
"Don't come any closer."

HAIR ON BACK OR NECK STANDING UP
Either "I am looking for a fight" or "I am afraid," depending on the context.

COWERING
"I am afraid."

CHEST ON GROUND AND REAR IN THE AIR
"Let's play!"

STARING AT YOU
"I do not like this."

LOOKS AWAY FROM YOU
"I would like to diffuse this situation."

TAIL WAGS IN A CIRCLE
"I am so happy!"

TAIL WAGS TO THE RIGHT
"I like this."

TAIL WAGS TO THE LEFT
"I do not like this."

TAIL ERECT, HELD HIGH
"I am alert and confident."

TAIL BETWEEN LEGS
"I am afraid."

ROLLS ON BACK EXPOSING BELLY
Either "Rub my belly" or "I am submissive to you," depending on context.

EARS PULLED BACK
"I'm relaxed. You should pet me now."

EARS TILTED FORWARD
Either "I'm curious" or "I'm feeling anxious," depending on the context.

ONE EAR UP, ONE EAR DOWN
"I'm paying attention, but not that closely."

TILTED HEAD
"I'm engaged with you."

ALL ABOUT THE BARKS

Dogs, like people, have numerous ways to verbalize their needs. When you understand why your dog is barking, you can better address it before it gets out of control.

BARKING CAN BE A GOOD THING—OUR DOGS CAN OFTEN DETECT intruders or other dangers before we can. Greeting barking can be a friendly way to welcome guests to the house as long as it isn't excessive. Play barking, such as when your dog is romping with its pals at the dog park, simply indicates that your pup is having a good time.

But none of us want to be that person on the block whose dog NEVER. STOPS. BARKING. If your dog's barking becomes annoying or concerning, there are things you can do to quiet it down.

Learn to Speak Dog

Generally speaking, the lower the pitch of a dog's bark, the more stern the dog is feeling. The number of barks in a row is also worth paying attention to, as is the space between successive barks. A dog who emits a single, low-pitched bark may be communicating "back off," but if it's a single, high-pitched bark, it could indicate surprise. Low-pitched barks in quick succession could indicate danger—this is what you'll hear when someone rings the doorbell. But if your dog is trying to get your attention to play or is upset you are leaving, you'll generally hear a slower succession of high-pitched barks.

Give It to Me NOW

If your dog uses its barks to demand things, such as treats or affection, stop rewarding it for barking. If a dog barks and gets what it wants, it will try barking in other "demand" situations, and eventually you'll be getting barked at constantly. Identify all "demand" bark scenarios, and ignore the barks consistently across all the situations.

Mr. or Miss Discontent

Some dogs bark excessively when they are frustrated or otherwise unhappy with their situations. Maybe you aren't moving to prepare their dinner fast enough. Maybe it is fenced in the backyard, but it wants to play with a dog walking by or with the kids across the street. According to the American Society for the Prevention of Cruelty to Animals, obedience training is the best bet to treat angst barking, as following your commands helps a dog control its instincts.

The Compulsive

If your dog doesn't seem to have a trigger for its barking and barks for long periods of time, the behavior may be compulsive. It's stressful for you and your pet, so ask your vet to recommend a professional who can help.

WOULD YOUR DOG BENEFIT FROM THERAPY?

Animal behavior experts share their stories.

By Jeffrey Kluger

BUDDIE CAN'T AFFORD TO MISS TAKING HIS MEDS—AND IT'S not easy to keep all of them straight. There is the milligram of Xanax he gets every six to eight hours. There are the 30mg of Prozac he takes daily. There used to be Valium and Ativan, but he moved on to other things when they weren't helping.

Clearly, Buddie has issues, and the fact that he's a dog doesn't make them easier to watch. A 13-year-old beagle-sheltie mix, he has been suffering periodic panic attacks since he was 10. The episodes usually begin with his leaping up as if he's been bitten. He then spends days in a state of agitation and terror—with his family utterly helpless to make him feel better.

"He can't be verbally interrupted when this happens," says his owner Gail Puntin, of Tyringham, Massachusetts. "It usually lasts four to five days."

Out of options, Puntin brought Buddie to the Foster Hospital for Small Animals on the campus of Tufts University in North Grafton, Massachusetts, a place known archly among some pet owners as Last Resort Nation. "So many people come in and say, 'If you can't fix this problem, I'm going to have to put this animal to sleep,'" says Nick Dodman, director of Tufts' animal behavior department of clinical sciences. In addition to overseeing the work of the department, Dodman is the personal physician to many of the animals brought to the clinic, and he added Buddie to his patient load. "Buddie has a pretty long chart," Dodman says, flipping through the dog's medical records. "But I won't know what we can do for him until I see him."

As a society, we've come a long way in appreciating the importance of mental health and the need to address mental

Thanks to advances in areas like biology, genetics, and neuroscience, we are learning more about the vulnerabilities of the animal mind.

illness in humans. And thanks to advances in areas like biology, genetics and neuroscience, we are learning more about the vulnerabilities of the animal mind. It isn't easy: Only the animals know what they're feeling, and they're not saying. But the mind of a human baby is unknowable too, and we still learn a lot by watching. We know when a baby is happy, when it's sad, when it's frightened. If a baby could lose its mind, we'd be able to intuit that too.

So it is with animals. And it turns out the ones we encounter closely enough to observe have more reasons to go to pieces than others. Animals in the wild live the lives they're intended to live. Animals that are forced to interact with humans live very different ones—in zoos, circuses, amusement parks. They are kept on farms, in stables and labs, living in cages, pens and crates. Even the ones that are cosseted in our homes spend much of their time confined indoors when every scrap of DNA they have is telling them to be out in a field or forest. So some of them go nuts.

Animals in zoos sway and pace and sink into languor. Chickens on industrial farms peck one another to death. Tilikum the orca lived up to the "killer whale" misnomer by which his species is known when he dragged Dawn Brancheau, a 40-year-old trainer at SeaWorld, to her death in 2010. Gus the polar bear, the famed attraction at the Central Park Zoo in New York City until his death in 2013, swam in robotic laps back and forth in a small pool from which he realized there was no escape.

It's the animals we know the best, however—the ones that become part of our families—that touch us most, which overwhelmingly means dogs, cats, and birds. Parrots in cages tear at their own feathers. Abused dogs retreat in terror at the sight of a human hand. Cats and dogs engage in what appears to be obsessive-compulsive behavior, licking a patch of fur over and over until it becomes infected. Animals exhibit night terrors, post-traumatic stress disorder (PTSD), separation anxiety, hoarding, depression, and more. Increasingly, veterinarians are realizing that animal brains operate in many of the same ways human brains do—which means they can break down the same ways as well.

Reading the Signs

The beast has not been born that can fill out a personality survey, which means we must lean heavily on observation—an admittedly imperfect method. But biology is biology, and it operates in a fixed number of ways. "A dog is the same bunch of chemicals we are," says Marc Bekoff, professor emeritus of ecology and evolutionary biology at the University of Colorado at Boulder. "All mammals share the same structures in the limbic system for emotions."

It goes even deeper than that. Dodman has published a paper in which he reports finding a gene in Doberman pinschers that is associated with a breed-specific form of obsessive-compulsive disorder (OCD) involving compulsively nursing on an object like a blanket or a part of their body.

To Dodman, that looked like the human condition known as pica, which involves a compulsive need to mouth or eat nonedible things. And pica, in turn, is associated with hoarding, another frequent expression of OCD. When Dodman put afflicted Dobermans inside a MRI, he noticed abnormal levels of activity in the right anterior insula—the same place all those same behaviors are mediated in the human brain.

Just as with human brains, animal brains can have their levels of the neurotransmitter serotonin elevated by antidepressants, reducing symptoms. But again, as with humans, not every animal is a good candidate for every medication. Long, lanky dogs like greyhounds and whippets—the so-called sight hounds, because they hunt primarily with vision and speed—can be especially tricky. "They are notorious for having different metabolisms and being hit very hard by drugs," says Dodman.

Overall, according to Bonnie Beaver, former executive director of the American College of Veterinary Behaviorists and a professor at Texas A&M University, only a minority of animals are helped by taking drugs, but that's better than none at all. What's more, the way drugs are tested for humans actually gives non-humans a head start. "Because most medications that come to market have gone through animal studies," says Beaver, "we have some background on them."

There are limits to the parallels between human and animal patients, of course. Take those constantly grooming cats. They seem to be exhibiting OCD—a legitimate diagnosis, but only until it isn't. Beaver likes to talk about a 2006 study in which researchers wanted to investigate this so-called psychogenic grooming. They gathered a group of 21 symptomatic cats, but before the study could proceed, the animals had to be screened for dermatological diseases to rule out problems as straightforward as a rash. The result? "Nineteen of 21 cats had a derm problem," says Beaver.

This kind of misinterpretation bedevils pet owners too. A dog exhibits all the signs of sadness, so humans determine that it must be feeling sad. "But just because the animal has their head down does not necessarily mean they're sad," says Beaver. "They may have a headache. We don't even know if they get a headache."

Birdsong, similarly, sounds happy to us, so we assume that's how the bird feels. But a song to our ears may be a threat or territorial claim to another bird, and a canary in a cage has a lot to feel threatened about. "In trying to understand what's going on in an animal's mind," says Beaver, "we have to view it through filters that limit our capacity to understand."

Talk Therapy—Sort Of

Still, very often the diagnosis is correct. The question is, Then what? Pet owners rarely want to use medication as a first resort,

and that makes sense. Sometimes the easiest intervention is what's known as enrichment, or improving the animal's surroundings. This is often used in zoos, memorably with Gus the polar bear, who was given toys to play with as well as food frozen in blocks of ice that he had to work to reach and eat—a more engaging way to get his dinner than simply being tossed a fish.

"We say we're going to make them work for their food," says Valerie Hare, head of the non-profit group Shape of Enrichment, which consults with zoos, farms, and other operations. "But if they don't do the work, we're still going to feed them. We're giving them a sense of control over some aspects of their environment."

For house pets—particularly those living in apartments—a similar strategy might involve more activity-stimulating toys or simply more time outside. When one family came to Dodman at Tufts with an anxious border collie, he recommended enrolling the dog in a herding class, which is what it would be doing if it lived on a farm anyway.

Other kinds of behavior therapy can take more time. Dogs returning from war zones exhibit signs of PTSD—jumpiness, anxiety, poor sleep, loss of appetite—and how could they not? An explosion is an explosion whether you're a canine or a human, and repeated explosions take their toll. So too does the smell of blood and an environment of fear and combat. Making the animals feel safe again can involve a lot of time spent just being with them, tending to them, and backing off when they need time to themselves.

Tilikum the whale might be the animal world's most notorious PTSD survivor, with not one but three deaths on his rap sheet. In 1991, a trainer fell into his tank, and he and two other orcas drowned her. In 1999, a dead man was found lying across Tilikum's back, having apparently entered the water-park grounds at night. No one knows how the man died, but the incident did not do much for Tilikum's rep.

But if Tilikum turned bad, he had reason. He was only 2 when his family was slaughtered and he was captured. He spent the next year in a small cement tank in Iceland and has spent every year since in bigger pools that still do not remotely resemble the ocean he called home. Messing with powerful emotions in a powerful animal was never going to end well.

"Considering all those factors," says behavioral biologist Toni Frohoff, a co-author of the book *Dolphin Mysteries*, "the fact that there's any remnant of a functional orca in him could be a testament to his strength."

The same is true of smaller animals. The pit bulls who were rescued from the dogfighting ring operated by NFL player Michael Vick were put through a rehabilitation that consisted mostly of teaching them to trust the new people they were getting to know. They may never be able to engage with other dogs, especially other pit bulls, since they were bred to fight one another in the first place. For some of them, any recovery may be impossible. The ideal period for socialization of a dog comes very early in its life—at 4 to 8 weeks of age. Filling that period with terror and pain may simply leave too much emotional scar tissue behind.

"Dogs that have been mentally abused, that have been beaten, may be desocialized," says Beaver. "They passed that golden time period when socialization occurs."

Endgame

Ultimately, the simple matter of age will claim all pets. Loss of hearing, poor vision, aching joints, and deteriorating cognitive function have the same effect on an animal's mood as they have on a human's—and it's not good. Dodman spent his first session with Buddie mostly observing his 13-year-old patient and talking to Puntin about Buddie's behavior.

The preliminary diagnosis was bad: The problem was likely related to seizures caused by a slow-growing brain tumor. It would explain the geriatric onset of the behavior and the fact that it is inconsistent with a dog who historically had an even temperament. An MRI would settle the diagnosis, but an MRI costs $800, and there would be nothing to do about a tumor even if one were discovered. Buddie has already lived past the 11-to-12-year life expectancy for a dog of his size and mix. "I want to treat him conservatively, given his age," Puntin decided, and Dodman agreed.

Anti-inflammatories for Buddie's arthritic hips would help, allowing him to play more. And an anticonvulsant could help eliminate or at least ease the seizures. "He's a good old dog," Dodman says, patting him. "You want to keep him comfortable."

End-of-life care is not enough for other, younger pets—ones with many years of potentially happy life ahead of them, if only their unhappy minds would permit it. Ideally, all domesticated animals would be able to end their days like Alex, the famed gray parrot that died in 2007 at age 31 and was raised from chickhood by animal psychologist Irene Pepperberg, who taught him 100 words and made him a go-to case for people studying the animal mind.

On the last night of Alex's life, according to his obituary in the *New York Times* (yes, Alex had an obit in the *New York Times*), Pepperberg was covering his cage and he said, "You be good. See you tomorrow. I love you." He was found dead the next morning, but he had lived happily, and as far as can ever be known, he died peacefully. Buddie—and every other animal whose lot has been cast with us—deserves the same chance.

—With reporting by David Bjerklie and Andréa Ford

HOW TO KEEP YOUR DOG SAFE IN THE HEAT

When temperatures rise, your pup needs extra attention.

Signs of Doggie Heatstroke

- Excessive panting
- Staggering or collapsing
- Rapid heartbeat
- Excessive tiredness
- Glassy eyes
- Hot to the touch
- Drooling or vomiting

1. Understand how your dog cools itself

Unlike humans, dogs do not self-cool through sweating. Dogs sweat mainly through their paws, which does not provide ample cooling. Instead, dogs cool themselves from the inside out. When a dog pants, it causes the moisture in their airways to evaporate and offers a cooling effect. Dogs' blood vessels also dilate when they are hot, which brings warm blood to the surface to cool.

Excessive humidity can make a dogs' panting less effective. And because dogs cool themselves primarily through panting, putting them in front of a fan does little to help them feel cooler.

If your dog is panting excessively or if their face and ears are red, give it some cool water to drink immediately.

2. Test the walking surface

If a walking surface is hot to the touch, it's too hot for your dog. The American Kennel Club recommends placing your hand on the surface for 10 seconds; if it's too hot for your hand, it's too hot for your dog's paws. Walk your pet on grass instead.

3. Time your walks appropriately

Go out early in the morning or in the evenings to avoid the peak heat times of the day.

4. Keep it hydrated

Make sure there's plenty of cool water available for your dog to drink. If it's extra hot, add an ice cube to its water dish.

5. Provide a safe environment

If your dogs usually stay outdoors, consider bringing them inside the house or garage on hot days. If that's not possible, make sure they have plenty of shade and cool water to drink. Investing in a kiddie pool can give them a spot to cool off.

6. Never leave them in a parked car

That means never. Even if you leave the windows cracked, the temperature inside a parked car can rise almost 20 degrees in 10 minutes, and almost 40 degrees in 30 minutes. Even if you are "just running in," any delay can put your dog in danger.

7. Consider doggie sunscreen

Like humans, dogs can sunburn and develop complications from sun exposure, especially for hairless breeds and dogs with thin or white coats. Chose a formula especially formulated for pets, as some chemicals in human sunscreens can cause allergic reactions. If your dog loves a day on the beach or boat, consider a sun shirt or rash guard to protect its sensitive skin.

CANINE QUESTIONS, ANSWERED

In case you were wondering…

Q: Are dogs left- or right-pawed?

A: A majority of dogs are! Researchers in a 2021 study published in *Applied Animal Behavior Science* reported that in a survey of 17,901 dog owners, 74% of them reported that their dog favored either the left or right paw.

Q: Do dogs feel guilt when they misbehave?

A: Only if they get caught. A 2009 study by Alexandra Horowitz, an adjunct associate professor at Barnard College and expert in dog cognition, published in *Behavioural Processes* revealed that when dog owners perceived their dog's "guilty look," it was more likely due to owner's cues rather than the dog feeling bad for doing something wrong.

Q: How old was the world's oldest dog?

A: Bobi, a purebred Rafeiro do Alentejo, which is a Portuguese livestock guardian breed, turned 31 years old in May 2023. According to the Associated Press, Bobi's owner, now 38, was only 8 years old when Bobi was born.

Q: Why are dog noses wet?

A: Their wet noses help them detect scents in the air and help cool them off. Dogs do not sweat in the same way humans do.

Q: Why do dogs sniff each other's butts?

A: A dog has sacs of fluid in its anus that contain chemical compounds that provide information about its sex, diet, emotional state, health, and other characteristics. Since dogs have a superior sense of smell, they sniff each other's butts to get this information and size each other up. They even have a special organ in their noses, called the Jacobson's organ, they use for this purpose. They engage this organ to sniff hydrants and other dogs' potty spots too.

Q: Why does my dog kick up grass after pooping?

A: Although it may look like your dog is being tidy, the behavior is a way for your dog to tell other dogs, "this is my space." Dogs' paws contain glands that release pheromones, and when a dog kicks, it spreads the pheromones around, marking the territory with its scent.

Chapter 5

A CAT'S WORLD

HOW A CAT 'SENSES' EVERYTHING

These feline facts will help you understand why they do what they do.

Sight

HUMANS Humans can see more colors in better saturation than cats can, and we can see objects that are much farther away—an average human can identify objects clearly from 100 feet away, but a cat can only identify things at about 20 feet.

CATS Unlike humans, cats are nocturnal, so their eyes are suited to see in dim light. Their retinas have a layer that contains a chemical compound that makes them more sensitive to light (it's also what makes them shine at night). Their color perception is similar to humans who have red-green color blindness.

Taste

HUMANS Humans have 18 times more taste receptors than cats.

CATS Cats have a relatively poor sense of taste, and they are not able to detect sweetness. Research has shown that they may be particularly good at identifying bitterness, which would help them avoid eating spoiled food.

Hearing

HUMANS Humans only have six muscles in each ear.

CATS Cats can hear far better than humans and dogs. Their ears contain 30 muscles, so they can move their ears quickly to pinpoint what a noise is and where it is coming from. Cats can hear frequencies of 85,000 vibrations per second, humans can hear only 20,000.

Smell

HUMANS Our sense of smell is OK, but we don't rely on it as much as our feline friends do.

CATS A cat's sense of smell is far better than humans'. Cats are especially good at detecting compounds in particular foods they like, such as fish.

Touch

HUMANS While humans are sensitive to touch, cats take it to another level.

CATS Cat hair has sensitive nerve endings, so they respond well to physical affection (if they are in the mood). Their whiskers, eyebrows, and ear tufts can detect small changes in the environment. Their feet and paws are sensitive too.

HOW MUSIC FOR CATS IS MADE

Soothing tunes aren't just for humans anymore.

By Kate Samuelson

CELLIST AND MUSICIAN DAVID TEIE, A SOLOIST with the National Symphony Orchestra (shown, right), created the first-ever album specifically for cats to listen to. We spoke to him about *Music for Cats*—and whether it actually works.

Q: What made you decide to make music that isn't for humans?

A: It first started when I was doing a concert with Metallica. There was a very strong emotional sense to the music, which didn't seem to exist in nature—and that struck me. Later, I was putting together a lecture series on performing music in a way that can help people understand its structure and I realized how much music is built for the human scale.

I started questioning things, like 'Why doesn't a song last for a tenth of a second, or ten thousand years?' The answer is because it's made for humans by humans and for our timescale and the frequencies we hear—in the same way that we don't paint in colors we can't see.

That made me decide to examine each layer of music, to question each element of it and think about why each one affects human emotions. I then decided I would try and make music not for humans, by replacing some of the layers for humans with layers for animals instead.

If I had to choose the 15 greatest experiences of my life, I'm sure half would be in music and it's also such a powerful communicative tool; people love their pets and consider them to be members of their family, so the idea is that this album can be a form of enrichment for cats, as well as helping them communicate.

Q: Why cats?

A: I first tested my theory on capuchin monkeys. I wrote music for them and researchers at the University of Wisconsin tried it out. It proved successful, so I decided to write for some of the animals that are most commonly around us.

I decided to do cats [because] they are very consistent across the breeds; if you write for one it will hopefully get through to the others.

Q: What "layers" did you use for the cat music?

A: One of things I thought about was how at birth, cats' brains are only one-eighth of the size they will be at 10 weeks. Most of their brain development happens outside the womb, so I figured that a reward-related sound that all cats would have heard as their brains developed would work. I managed to recreate a sort of "shoop-shoop" swishing sound, representing the suckling for milk that they would have experienced at a very young age.

I also looked into recreating a purring sound. Cats purr when they are content and when they are in pain, but not when they are by themselves. So it's a sympathetic communication (among felines). I used instruments which made a purr-like sound, intended to communicate the same kind of sense of sympathetic understanding.

Q: What has the reaction been from cats?

A: There was a testing of the cat music in Wisconsin, which went well. The researchers said the cats would nuzzle up next to the speaker, showing marking and ownership, as well as curl up nearby and purr. Apparently the majority of them responded favorably—they enjoyed the music and were calmed by it.

One of the cats we used in our Kickstarter campaign was a famous cat called Cole—one half of the internet sensation that is Cole and Marmalade. Cole didn't take any interest in the music at first, but later on became quite a big fan. I like the idea it can be an acquired taste and can grow on cats.

Your Cat Might Like Classical Music Too

In 2015, researchers found that felines much prefer the lush sound of classical music over adult contemporary or rock when having a surgical operation.

In an experiment detailed in the Journal of Feline Medicine and Surgery, veterinary clinicians at the University of Lisbon studied how 12 female pet cats responded to different genres of music while undergoing neutering.

To gauge the animals' responses, the clinicians recorded their respiratory rates and pupil diameters, which are an indication of their depth of anesthesia.

During the experiment, the cats were fitted with headphones and then exposed to two minutes of silence—as a control—before listening to portions of Barber's "Adagio for Strings (Opus 11)," Natalie Imbruglia's "Torn" and AC/DC's "Thunderstruck."

"The results showed that the cats were in a more relaxed state (as determined by their lower values for respiratory rate and pupil diameter) under the influence of classical music, with the pop music producing intermediate values," reports Science Daily.

And perhaps unsurprisingly, listening to AC/DC while being spayed induced "a more stressful situation."

—By David Stout

CAN YOUR CAT PREDICT THE WEATHER?

The cat mind has long been a subject of mystery. A book published 140 years ago suggests we can add meteorology to their long list of mad skills.

By Kyle Chayka

THE CLIMATE'S BEEN SO INCONSISTENT LATELY— heat waves, flooding, strong thunderstorms, tornadoes—maybe you should stop listening to weather reports and go back to the only source you can really trust: your cat.

That's the suggestion of H.H.C. Dunwoody, an Army first lieutenant who suggested in 1883 that rather than putting our faith in meteorologists who can't predict the weather "for a longer period than two or three days, and frequently not longer than 24 hours," we should follow the wisdom of animals.

In his book *Weather Proverbs*, unearthed by NPR, Dunwoody documents a long list of widely-held folk beliefs about weather predictions, including signals from bears, foxes, and goats, but he particularly focuses on cats. Here are some of the feline indicators Dunwoody interpreted:

- When cats sneeze it is a sign of rain.
- The cardinal point to which a cat turns and washes its face after rain shows the direction from which the wind will blow.
- When cats are snoring, foul weather follows.
- It is a sign of rain if the cat washes its head behind its ear.
- When a cat lies on its head with its mouth turned up [on its back], expect a storm.
- When a cat washes its face with its back to the fire, expect a thaw in winter.

Apparently too many cats have been snoring and laying on their backs with their mouths turned up. Cat owners, please let us know when to batten down the hatches.

Cats Are as Smart as Dogs

A 2017 study suggests that cats may be as smart as dogs (and humans).

Japanese scientists tested to see if 49 domestic cats could remember which containers they ate food out of following a 15-minute delay even if said container was emptied, according to the study's abstract. Having an episodic memory is often associated with having a degree of self-awareness, and separate researchers had already determined that dogs displayed use of an episodic memory.

The test results revealed that cats could "retrieve and utilize [the] 'what' and 'where' information" they encoded from a single past event; in this case, the container they ate from. The researchers also said cats performed comparably to dogs in tests about understanding human gestures and facial expressions, the BBC reported.

"Understanding cats more deeply helps to establish better cat-human relationships," study author Saho Takagi, a psychologist at Kyoto University, told the BBC. "Cats may be as intelligent as dogs, as opposed to the common view of people that dogs are much smarter."

—By Julia Zorthian

FAMOUS CATS WE LOVE

Hello, cute kitties!

Taylor Swift's Cats

Swift is a proud cat mom who often shares photos of her felines on social media. She currently owns three cats, Scottish Folds Meredith Gray and Olivia Benson, and Benjamin Button, a Ragdoll. Swift is shown here with Olivia Benson in New York's SoHo in 2014.

Mr. Jinx

Mr. Jinx rose to fame after his appearance in the 2000 film *Meet the Parents*, where he played the beloved family cat who could use a toilet. Mr. Jinx was reportedly played by two different Himalayan cat actors. Mr. Jinx is shown here with actor Robert De Niro.

Grumpy Cat

Grumpy Cat, a calico-tabby whose real name was Tardar Sauce, was featured in memes, made TV appearances, starred in commercials, and was the subject of two books. She's shown here at an event in Germany in 2017.

Mr. Bigglesworth

Mr. Bigglesworth was a sphynx who belonged to the Mike Meyers character Dr. Evil in the *Austin Powers* film series. His real name was Ted Nude-Gent.

Orangey

Orangey was a male tabby who appeared in over a dozen films and TV shows in the 1950s and 1960s, including *Breakfast at Tiffany's* (shown), T*he Incredible Shrinking Man*, and *My Favorite Martian*.

HOW DO CATS FIND THE WAY HOME?

The feline version of Google Maps might surprise you.

By Jeffrey Kluger

ANIMAL NAVIGATION HAS LONG BEEN SOMETHING of a black box for scientists. The mystery of how nonhumans—without benefit of maps, language or GPS—manage to find their way from place to place, often over very great distances, has long perplexed us.

Studies have shown that some animals navigate via magnetism—orienting themselves along the north-south lines of Earth's magnetic fields. In one study of baby sea turtles, which typically migrate east after hatching, changing the orientation of magnetic generators around a swimming pool changed the direction in which the hatchlings swam too.

Cats, like other animals, might also rely on magnetic fields—a faculty that could turn out to be quite common in mammals. "There are some studies that show that the ears of most mammals contain iron," Bonnie Beaver, the former executive director of the American College of Veterinary Behaviorists and a professor at Texas A&M University, says. "That may cue them into the magnetic direction in the ground. There's work showing that cattle, deer, and voles tend to orient in a north-south direction."

No matter how well animals navigate, scientists caution against an observation bias that may make them seem better than they are. A cat that finds its way halfway across the state makes news; the uncounted others that stay lost do not. What's more, some cases of remarkable returns may turn out to be matters of mistaken identity, unless there's a positive way to identify an animal like an implanted microchip that some owners use along with a collar.

"You hear these stories about a three-legged black cat that came home and jumped into its favorite chair," says Beaver. "But it's real hard to be sure because they've been gone a long time and they look scruffy. And heck, that chair would be a comfortable one for any cat."

Still, we shouldn't dismiss all the stories out of hand. A cat that traveled 200 miles in 2013 did have a microchip to prove it. So kudos to at least one kitty—and probably a whole lot more.

WHY DO CATS KNEAD?

It's likely your feline thinks you are a giant cat.

By Kyle Chayka

IF YOU OWN A CAT, YOU PROBABLY IDENTIFY AS something like its mother, albeit a human version, who feeds it, entertains it, and licks its fur to keep it clean (hopefully not). Unfortunately, your cat sees your pet-owner relationship much differently, according to the book *Cat Sense* by English anthrozoologist John Bradshaw. It actually thinks you're a "larger, non-hostile" cat.

Bradshaw, who has been studying the behavior of domesticated animals for over 40 years, reveals some fascinating explanations for why cats act the way they do around humans. For one, since cats have never been bred for a specific function other than looking nice, they're ultimately less domesticated than the dog breeds humans have designed for chasing down game and helping around the house. Many adopted shelter cats descend from feral or community cats, so the species has stayed relatively wild. The animals' interactions with their owners are driven less by learned behavior than by pure instinct.

When a cat kneads your body or the surface of a bed, it's a behavior that's meant for its mother's belly, a message to keep milk flowing. Rubbing up against a human leg or hand is a way of treating you as another cat, "the clearest way cats show their affection for us," Bradshaw explains. Leaving dead rats around the house isn't a way of "feeding" their owners, but rather, the cats want a safe place to eat their kill. When they actually take a bite of the victim, they realize their normal human-delivered cat food tastes way better. And if you've ever seen a rat in any major city, this should be obvious.

So next time you call your cat your "baby" or chide it for being annoying, just remember—it thinks of you as a fairly pleasant roommate that just happens to be freakishly large for reasons it can't comprehend.

Rubbing up against a human leg or hand is a way of treating you as another cat, "the clearest way cats show their affection for us," Bradshaw explains.

Cats Care More About People Than Food

Cats may have a reputation of being standoffish creatures who show their owners affection merely to fill their tummies, but this may not be the case.

A 2017 study carried out by scientists from Oregon State University determined that felines actually prefer human social interaction to food, making them no less loving than their canine counterparts.

For the study, which was published in the journal Behavioural Processes, scientists examined what happened when domestic pets and shelter cats were given a choice of stimuli. The creatures were offered a choice among food, toys, scent, and social interaction with humans, to see which their preferences were.

Although there was clear individual variability in cat preference, social interaction with humans was the preferred activity for the majority of both pet and shelter cats, followed by food.

“Increasingly cat cognition research is providing evidence of their complex socio-cognitive and problem solving abilities,” the study read. “Nonetheless, it is still common belief that cats are not especially sociable or trainable.”

—By Kate Samuelson

Chapter 6

CARING FOR YOUR CAT

SET UP FOR SUCCESS

If you are adopting your first cat, here's what to do.

A BASKET FULL OF FUZZY PURRING KITTENS IS hard to resist, as are the adorable, heart-tugging photos rescues post on social media. But before you bring one (or two) baby felines home, make sure you are prepared to raise them responsibly.

First, Make Sure You Can Afford It

At times, dog ownership may be a little more taxing than being a cat parent, but you still need to make sure you can finance and support your cat in many of the same ways that you would a dog. You may look at a tiny kitten and think, *this couldn't possibly cost that much or take up so much time*, but it can! For more information on the true costs of pet ownership, see "Assess Whether You Can Handle It" on page 55 (it applies to cats too). If you plan to have an outdoor cat, you may want to install a pet door before you adopt.

Cat-Proof the House

You, your family, and your cat should be able to coexist happily, but it's going to require a trip to the hardware store. First, remove all cat-unfriendly items from your home (see the list on page 91), and install the following:

- **Furniture covers:** Cover surfaces that you don't want scratched until your cat learns that their scratching post is the ONLY scratching post.
- **Fireplace barrier:** If you have a natural fireplace, your cat will likely check it out and track soot all over the place.
- **Cord covers:** Wrap any loose cords and secure them to the floor.
- **Child-proof latches:** Install them on all cupboards that contain toxic items.
- **Furniture anchors:** Secure shelves or light furniture to the wall if there is a chance your cat can knock them over.
- **Cordless blinds:** Your cat could get tangled up while trying to look out the window.

The first three days, they will be stressed and probably not act like themselves. At about three weeks, bonding starts, they start to feel comfortable, and routines start forming. At three months, they should be fully settled.

Cat-Proof the Kids

Explain to your little ones that picking up their toys isn't just a good habit—small toys pose a choking hazard. Remind your kids to routinely close cupboard and outside doors, to check all appliances (dishwasher, washer/dryer) for their pet before operating, and to make sure they keep the toilet seat down. Practice these behaviors well in advance of "gotcha day."

Set Up a Quiet Space

Designate an area, like a small bathroom or laundry room, for your cat to stay while it acclimates to the new environment. Set up a bed, provide a litter box, and food, water, toys, and a place to hide (a cardboard box will do). Your cat will not feel ignored; it needs time alone to get used to the new sights, sounds, and smells. Use the same food that your cat ate at its former home to offer the comfort of consistency.

Bond with Your Cat

It's going to be tough, especially for the kids, but you need to bond on the cat's terms. Some cats will warm up almost immediately, but others need to take their time.

1. When you get home the first day, put the cat in its quiet space, but leave the door open.
2. Family members can calmly and quietly visit in the cat's space, but do not initiate contact or pick them up.
3. Wait for your cat to come to you—it may take several days, but your new pet will eventually want to explore.
4. When your cat starts sitting next to you, kneading, or rubbing its head on you, it's feeling more comfortable.
5. Gently offer it treats to encourage it to come to you.
6. Pay attention to your cat's verbal and nonverbal cues (see page 92)—back off if necessary.

Shelters often teach new cat owners the 3-3-3 rule: Three days, three weeks, three months. The first three days, they will be stressed and probably not act like themselves. At about three weeks, bonding starts, they start to feel comfortable, and routines start forming. At three months, they should be fully settled.

First Cat Shopping List

- Dry and/or wet food
- Bowls for food and water
- A litter box, litter, scooper, and a mat (outdoor cats like litter boxes too)
- Healthy treats
- Collar and ID tag
- Carrier
- Bed
- Scratching post
- Cat tree
- A variety of toys (balls, interactive, feather teasers, catnip)
- Nail clipper
- Toothbrush and cat-friendly toothpaste
- Cat-friendly bath wipes
- A brush
- Enzyme-based stain and odor remover

HOW TO HOUSE-TRAIN A CAT

Fortunately for you, it is much easier to house-train a cat than a dog.

YOU CAN TEACH A CAT OF ANY AGE TO USE A LITTER box, even cats who like to roam outdoors. Follow these tips, and they should be doing their business properly in a matter of weeks.

Ready the Space

- **Location Matters:** Put the litter box in a quiet place where the cat can go privately.
- **Cats can be like Goldilocks about litter.** Be prepared to try different kinds until you find one your cat likes. If they don't like the litter, they aren't going to go there. If you need to change the type of litter you are using, do it slowly so they aren't surprised.
- **Make sure the litter box is the right size**—they should be able to turn around. Use low-sided trays for kittens and older cats with mobility issues. When a kitten gets the hang of it, you can switch to a tray with higher sides to prevent them from kicking the litter onto the floor.

Get "Going"

1. **Be a hawk for the cues:** When they have to go, they will probably "tell" you with their actions. Look for sniffing, scratching, or crouching. When you see it, pick them up and put them in the litter box.
2. **Establish routines:** Cats, and kittens particularly, tend to go immediately after eating or waking from a nap, so put them in the box right after meals and naps.
3. **Praise, don't punish:** Praise them and offer a treat when they go in the litter box, but do not punish them when there's an accident. Just clean it up and move on.
4. **Keep it clean:** Cats do not like to go in a messy place. Scoop out solids every day. There are many different types of litter, so follow package directions for how often to change it. Every time you change the litter, wash the box with hot, soapy water. Do not use disinfectants.
5. **Be patient:** Some cats will figure it out right away, but it could take others a few weeks.

WHAT TO EXPECT AT THE VET

Make sure your kitten gets quality care from the get-go.

ASK OTHER CAT OWNERS FOR THEIR VET recommendations. Having a good rapport with the vet and office staff can help ease the anxiety many cats have about interacting with new people and places. Make sure they have separate areas for cats and dogs and a good after-hours policy. Book early, as good vets are in high demand.

It is important that a new cat be examined by a vet within a few days of adoption—cats can carry diseases that spread to other animals and to humans. Avoid socializing your kitten until it gets a clean bill of health, even if it seems healthy. Cats are notorious for being able to hide health problems.

Before You Go

The Humane Society strongly recommends that you spay or neuter your cat, as cat overpopulation is a major problem across the country. Altering your cat will also likely lengthen its lifespan significantly, as unaltered cats tend to roam more and put themselves in dangerous situations. So budget for it. The Humane Society opposes declawing, as it can be very painful.

Even if your cat will be an indoor dweller, consider microchipping because indoor cats tend to get very nervous in new environments and may not be able to find their way home if they've wandered off. If you plan on having an outdoor cat, you should get it chipped. If a wandering cat is picked up by animal control, the more forms of identification it has, the better.

Unlike most puppies, who will eagerly bound into a vet office to meet new people and explore the surroundings, most cats will exhibit high levels of stress and anxiety about leaving home, but there are things you can do to prepare for it. Since most vets require that you bring your cat in a carrier, make sure your cat has time to get used to it before the appointment. Line the carrier with an old towel that smells like home, and bring a spare (a nervous cat might soil their carrier). If your cat tends to get really worked up, consider getting an antianxiety jacket too—many owners swear by them. Don't feed your cat for several hours before the appointment, as fear may cause an upset stomach.

Your vet will probably ask you to bring a stool sample and all your cat's paperwork to the initial visit. Be prepared to discuss your new cat's temperament, history, home environment, and any concerns you have.

The First Appointment

At the first visit, the vet will examine your cat thoroughly, including its coat, mouth and teeth, eyes, ears, and paws. The doctor will feel its abdomen for abnormalities, take its temperature rectally, test its muscles and joints, and listen to its heart and lungs.

The vet will draw blood to test for feline leukemia virus (FeLV) and feline immunodeficiency virus (FIV), both of which are contagious to other cats and can alter a cat's quality of life. The vet should outline which vaccinations your cat needs. The American Animal Hospital Association recommends that all cats get vaccines against the following illnesses:

- **Rabies**, a virus that attacks the central nervous system and is almost always fatal
- **FeLV** (for cats under 1 year old), a contagious virus that weakens the immune system and has no cure
- **Feline herpesvirus-1** (FHV-1), an incurable, contagious virus that affects the upper respiratory system and eyes
- **Feline panleukopenia** (FPV), also known as feline distemper, a life-threatening, highly contagious virus that kills cells in the bone marrow, intestines, and skin
- **Feline calicivirus** (FCV), a virus that causes upper respiratory infections

Keeping up with vaccinations is key to giving your cat a long and healthy life. So follow the schedule your vet provides. If your cat will be roaming outdoors, the vet may recommend flea and tick protection and other medications, such as heartworm or anti-parasite drugs.

Not-So-Great Outdoors

Many cat owners believe that cats are happier outdoors because they are natural hunters. But the Humane Society advises against letting your cat roam freely because of the risks involved. Outdoor cats may be exposed to disease or toxic substances, or they could be injured in traffic or by another animal.

If your kitten is insisting on going out, consider leash-training and going for walks so you can monitor its whereabouts. Outdoor cat enclosures also work well for stubborn hunters, as they can safely pretend they are on the prowl. Indoors, make sure it has access to a window, and provide plenty of indoor playtime and stimulating activities.

CATS IN ART

Felines have been the subject of artists for thousands of years.

Clockwise from top left: *White Angora Cat Chasing a Butterfly,* circa 1760, by Jean-Jacques Bachelier; *Majaraha Ram Singh Hunting a Tiger*, circa 1875-1900, artist unknown; *Child with Cat* (Julie Manet), 1887, by Pierre-Auguste Renoir; An ancient Egyptian papyrus, artist unknown; *Two Children Teasing a Cat*, circa 1580, by Annibale Carracci; *The Angora Cat*, circa 1783-1785, by Jean Honore Fragonard and Marguerite Gerard

HOUSEHOLD ITEMS THAT SPELL DANGER FOR A CAT

Keep your kitty safe and healthy.

CATS ARE NATURALLY PLAYFUL, curious creatures, so when your new pet finally feels at home, it is going to try to get into almost everything. At best, it will annoy you; at worst, it could hurt itself or worse.

Everyday Perils Around the Home:

- Drapery cords and cords used on window blinds can suffocate or injure
- Small items, including kids' toys, rubber bands, or any other small item can pose a choking hazard
- Breakable items—secure them out of the cat's reach
- Crafting supplies—clean up the floor and table after every session
- Some houseplants (see the list at right)
- Fabric softener sheets, mothballs, and some essential oils can be toxic
- Batteries can burn their mouths
- Loose cords are a suffocation and electrocution hazard
- Lit candles can cause burns
- Plastic bags can suffocate
- Foam earplugs can expand when ingested and obstruct the airway
- Medicine (both human and feline)
- Unsecured trash cans

House and Cut Plants that Are Toxic to Cats:

- Lilies
- Jade
- Eucalyptus
- Poinsettias
- Mistletoe
- Aloe vera
- Philodendrons
- Pothos
- Sago palm
- Snake plants
- English ivy

Outdoor Plants that Are Toxic to Cats

- Daffodils
- Hyacinths
- Milkweed
- Tomato stems and leaves
- Mandrake shrubs
- Azaleas
- Amaryllis
- Tulips
- Oleander

If you suspect that your cat has been exposed to or ingested toxic materials or poison, call your vet or the ASPCA Animal Poison Control Center at (888) 426-4435.

Say No to People Food

Since many cats are overweight, you should not feed them table scraps or human food. Cat food and treats are specially formulated to meet their nutritional needs. That said, a little bit of unseasoned boneless chicken or salmon won't hurt them, but some foods will. These human foods are harmful to cats (and dogs too), so make sure they aren't out on the counter or in unattended trash.

- Anything that contains caffeine
- Chocolate
- Grapes and raisins
- Sugarless treats, toothpaste, and chewing gum made with Xylitol
- Alliums (garlic, onions, leeks, chives), including powdered forms
- Any meat with splintery bones, such as chicken or pork
- Alcohol
- Yeast dough
- Pitted fruits
- Dairy
- Salty snacks

WHAT YOUR CAT IS TRYING TO TELL YOU

When reading a cat's body language, the context is important. Think of things from the cat's perspective: If it is snuggled in its favorite spot lounging the day away, it is probably happy. But respect its space if it appears alarmed or threatened.

FACING YOU, TAIL UP, LOOKING AT YOU
"Sure, you can pet me."

STRETCHING WITH PAWS DOWN AND REAR IN THE AIR
"I'm comfortable."

STANDING FROZEN, STARING AT YOU
"Don't come any closer."

HOLDING ITS TAIL UP HIGH, VIBRATING IT
"I'm feeling great!"

FLICKING ITS TAIL
"Back off" or "I'm not into this."

HOLDING TAIL LOW OR TUCKING IT BETWEEN ITS LEGS
"I'm afraid."

LYING ON ITS BACK WITH BELLY OPEN
Either "I'm about to pounce" or "Pet my belly," depending on the context.

SLOWLY BLINKING
"I trust you."

DILATING ITS PUPILS
"Ooh, what is that?"

NARROWING ITS PUPILS
"I don't like this."

SCRATCHING SOMETHING REPEATEDLY
"This is my territory."

TILTING ITS EARS FORWARD
"I'm feeling good."

PERKING ITS EARS UP HIGH
"What's that?"

FLATTENING ITS EARS
"I don't like this."

PURRING
"I'm happy" or "I'm in pain," depending on the context.

MEOWING OR CHIRPING
"I'm really into this" or "I'm frustrated with this," depending on the context.

TRILLING
"Hello, friend!"

GROWLING
"I'm about to attack you."

YOWLING
"I'm out of options here. I don't like it."

HISS
"Back off."

STANDING WITH AN ARCHED BACK, SIDEWAYS, WITH THEIR TAIL DOWN, TRYING TO APPEAR LARGER THAN NORMAL
"I'm afraid" or "I'm angry."

STANDING IN THE SHAPE OF A BALL, MAKING THEMSELVES LOOK AS SMALL AS POSSIBLE
"I'm afraid" or "I'm in pain."

RELAXING ITS WHISKERS
"I'm friendly."

FANNING OUT ITS WHISKERS OR BUNCHING THEM TOGETHER
"I'm not sure I like this."

HOW TO FLY WITH A SMALL PET

Here's the scoop if you want to pack a little travel buddy.

FEDERAL AGENCIES PROVIDE GUIDELINES TO AIRLINES TO keep animals as safe as possible and monitor incidents when they come up.

Prepared pet owners can also help ensure animals fly without a problem. Here's what you need to know about traveling safely with cats, small dogs, and other animals:

What kind of pets do airlines allow?

The Department of Agriculture mandates how and which animals can be transported on flights, though individual carriers may have different rules. As airlines change their policies frequently, check the carrier's website for fees, kennel requirements, size limits, and breed restrictions.

Currently, Alaska Airlines is one of the few carriers that allows cats, dogs, ferrets, guinea pigs, hamsters, household birds, non-poisonous reptiles, pot-bellied pigs, rabbits, and tropical fish to fly as cargo on some aircraft. They also allow small dogs, cats, rabbits, and household birds to fly with you in the cabin. Frontier allows small dogs, cats, rabbits, guinea pigs, hamsters, or small household birds in the cabin. Southwest and American allow small dogs and cats in the cabin—American will ship a larger pet as cargo.

How can I keep my pet comfortable?

The Department of Transportation advises owners to get their pets accustomed to the kennel they will be staying in prior to the flight. Owners should also check that cages will remain closed throughout the duration of the flight. Kennels should be large enough for your pet to stand up and turn around.

Pets should not be given solid food for six hours prior to the flight. Transportation guidelines also advise giving your pet a moderate amount of water and a walk before and after the flight.

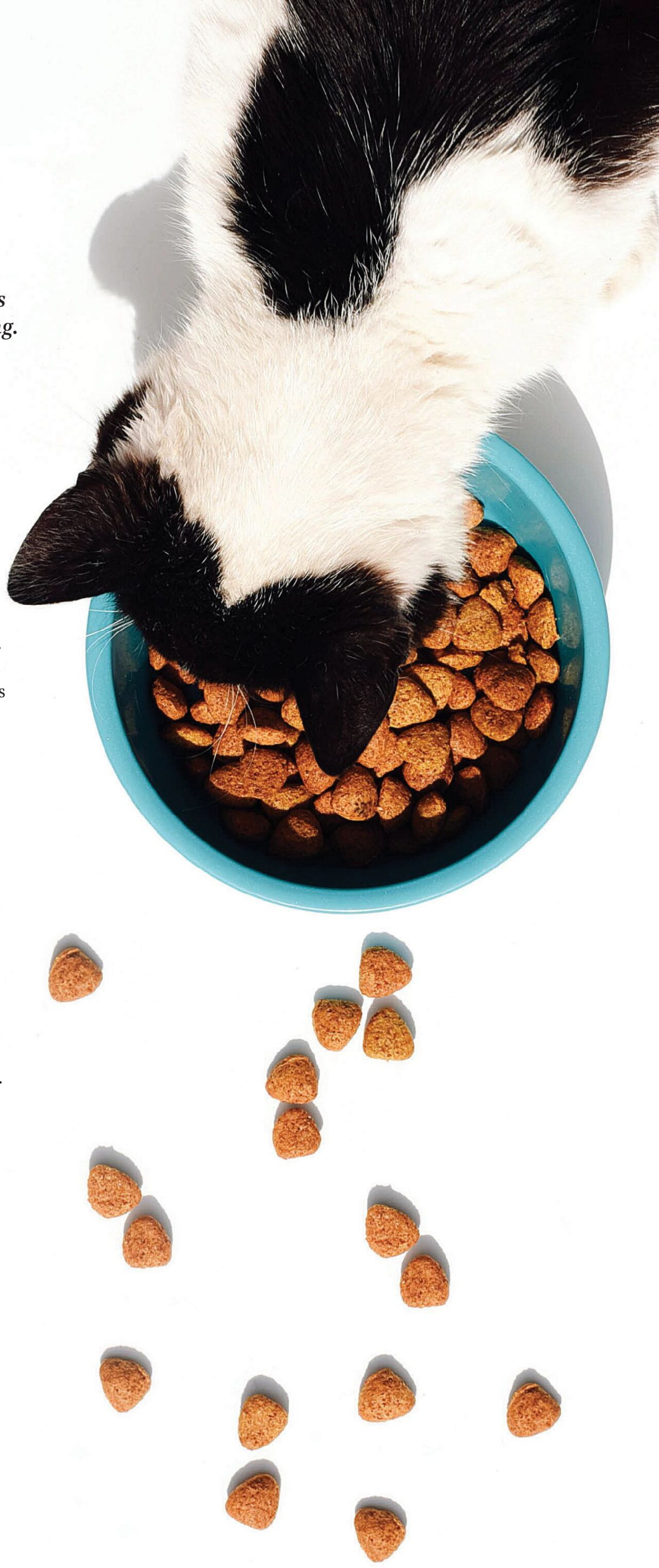
Check with your vet before giving your pets any sedatives before traveling.

On the day of the flight, avoid chaotic, last-minute rushing, especially if your pet tends to get anxious. Visit the pet relief area right before you board.

THE OBESE PET

Many of us spoil our pets to the point that it harms their health. Here's how to undo all that pampering.

By Melissa Chan



AMERICA'S PETS ARE GROWING INCREASINGLY FATTER. About one-third of dogs and cats in the U.S. are now overweight, according to a 2021 report released by Banfield Pet Hospital, which operates nearly 1,000 veterinary clinics across 42 states.

The organization found the number of overweight cats spiked 114% in the previous 10 years, while the number of overweight dogs jumped 108%. Banfield said it analyzed records of the millions of pets they see at their clinics each year.

The figures are alarming because obesity can have serious consequences and is associated with other chronic conditions and diseases, including arthritis and tracheal collapse in dogs, researchers said.

"Overweight pets—and the many related conditions associated with those extra pounds—are critical issues that we strive to both educate pet owners on and address in partnership with our clients to ultimately help pets live their best life," Dr. Daniel Aja, Banfield's former chief veterinary relations and transformation officer, said in a statement.

The report said overfeeding and lack of exercise are major contributing factors to obesity in pets.

Obesity also plagues more than one-third of American adults, according to the Centers for Disease Control and Prevention.

"Obesity is so common that many people underestimate their pet's body condition, preventing them from taking action to manage their pet's weight," the Banfield report said.

If your dog is diagnosed with obesity, the American Kennel Club suggests going for more walks and providing an environment that stimulates activity, such as a fenced-in yard or indoor play area, and limiting treats and table scraps. When a dog begs, it doesn't always mean it is hungry—sometimes it's a ploy for attention, so try playing with your dog instead of giving it a treat. Consult your vet about changing your pet's diet, establish set feeding times, and measure portion sizes. Chews and store-bought treats can be fattening, so try feeding your dog fruits or vegetables, like bananas, peeled pieces of apple, or carrot sticks, instead.

If your indoor cat is obese, ask your vet about diet changes. Try using a food puzzle when feeding; it slows the cat's eating and provides another opportunity for activity. Make sure that your cat has ample space for climbing and jumping, and offer it toys that encourage movement. If you are lucky, you might have a cat that you can train to wear a harness for outdoor walks on a leash.

YOUR CAT QUESTIONS, ANSWERED

Cat behavior can be amusing, confusing, and sometimes frustrating. Here's why they do what they do.

Q: Why does my cat wake me up in the middle of the night?

A: Cats are nocturnal creatures, so they assume you are too (even though you sleep at night). The key is not to give in to the cat's demands. If you do, they will try to wake you up every night. If your cats wake you up to be fed, give them some food right before you go to bed so they don't feel hungry until morning. If they are waking you up to play, they aren't getting enough activity during the day. Give them more playtime in the evening or provide interactive toys to wear them out.

Q: Why do cats like to crawl in boxes?

A: Cats like to hide in enclosed spaces while being able to peer out at the world around them. It gives them a sense of control, privacy, and security. So if your cats like your Amazon boxes, let them have one. Cats also like the insulation that a box provides, as a cat's body temperature is higher than a human's.

Q: Why do cats hate water?

A: Not all cats are afraid of water. There are a few domestic breeds that actually like a leisurely swim. But most domestic cats do not like to get wet. One theory is that certain breeds evolved in dry climates and weren't exposed to water. Or it could be due simply to how a cat's fur behaves when wet–it gets very heavy and may feel uncomfortable.

Q: How does catnip work?

A: Catnip is an herb in the mint family that contains a compound called nepetalactone that stimulates sensory neurons in a cat's brain. According to the Humane Society, only about 50% of cats are sensitive to its effects. When a sensitive cat smells catnip, it is thought to stimulate happy receptors in the brain, so the cat goes crazy for several minutes. But catnip often has the opposite effect if a sensitive cat eats it.

Q: My cat sleeps all day. Is there something wrong?

A: Probably not. Even though modern domesticated cats have their meals served to them on nice little dishes, they still have the hunter instincts of their ancestors. A wild cat hunts at night and sleeps during the day, saving its energy for the next night's hunt. A kitten will sleep most of the day, adolescents generally have erratic sleep patterns, and adult cats sleep between 12 and 20 hours a day.

TIME

Pets

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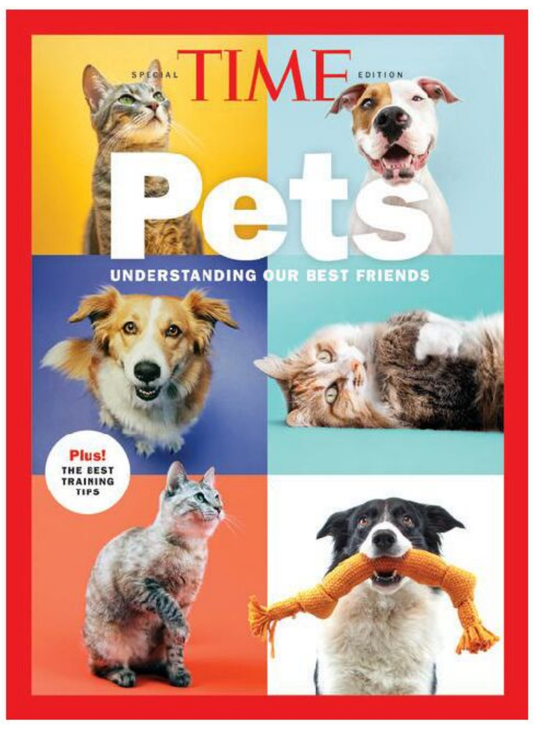

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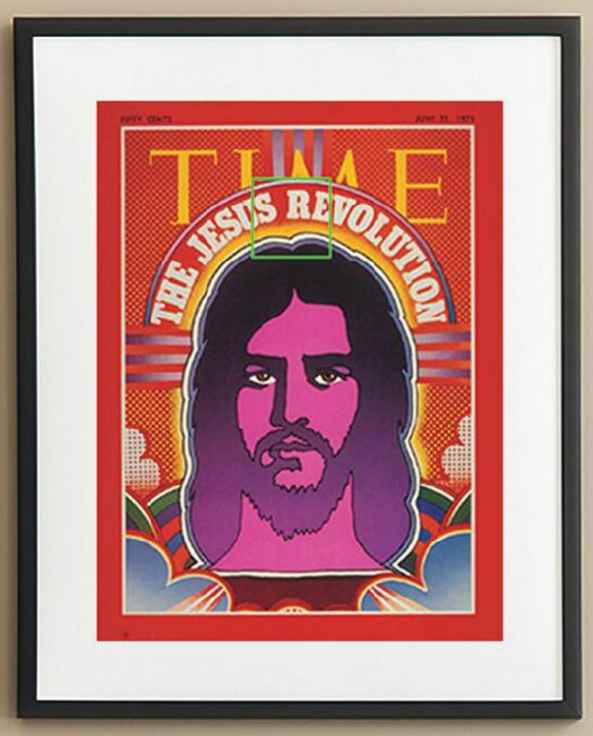

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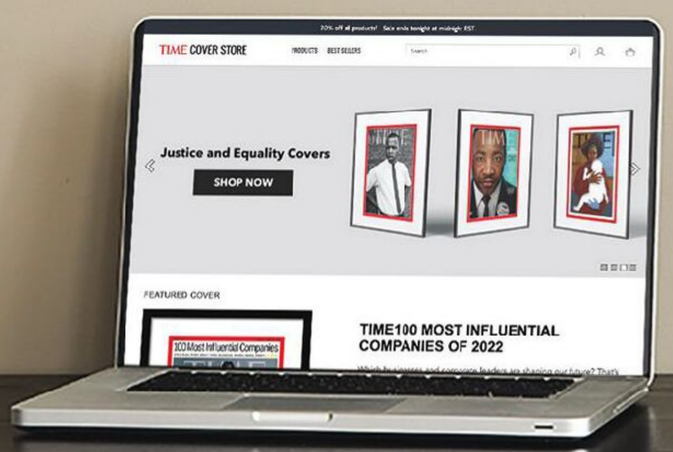
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